Smithsonian

May 1992

The Grand Trunk Road

Village schoolgirls hurry home along India's ancient highway **(p. 114)**

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May 1992

Smithsonian

Volume 23, Number 2

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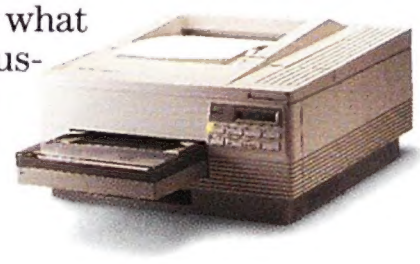

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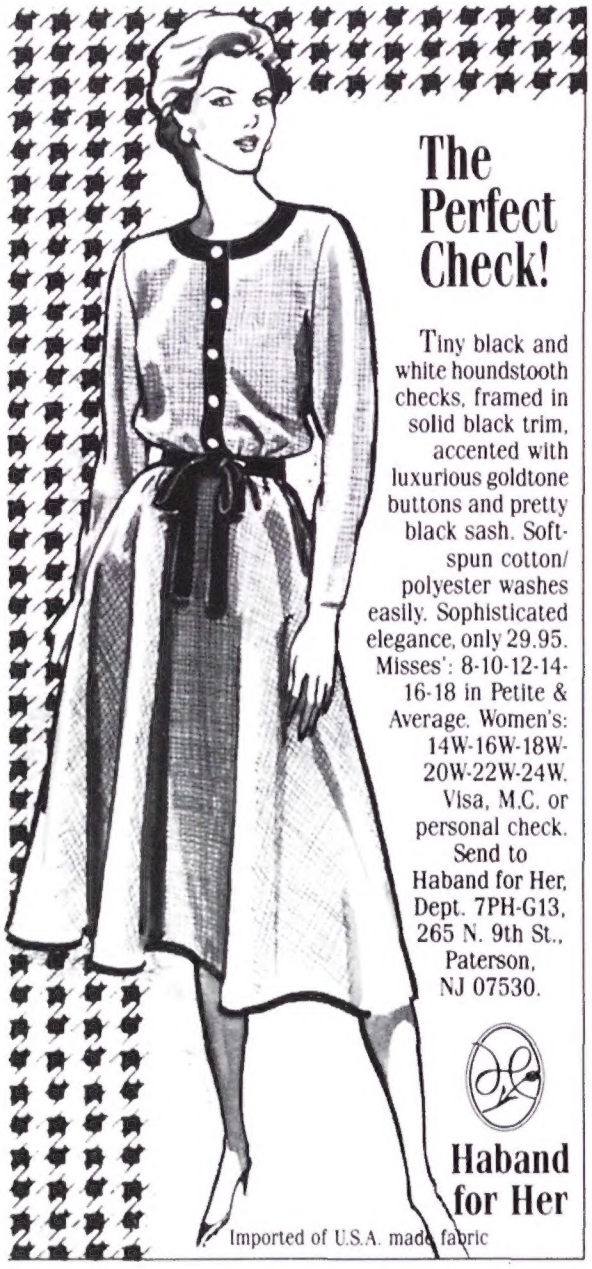

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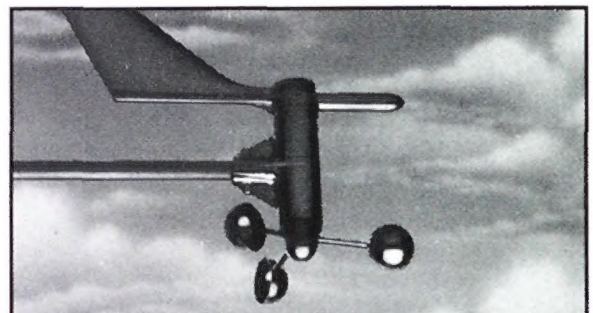

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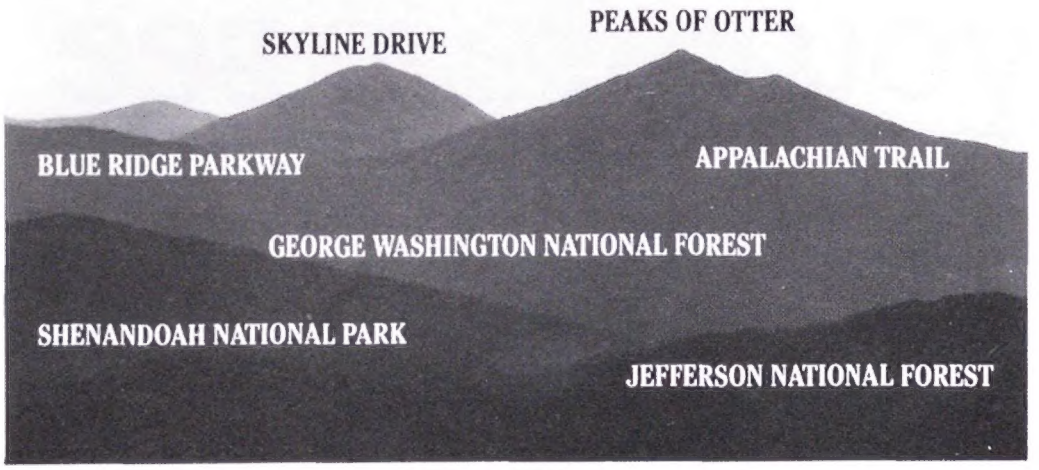

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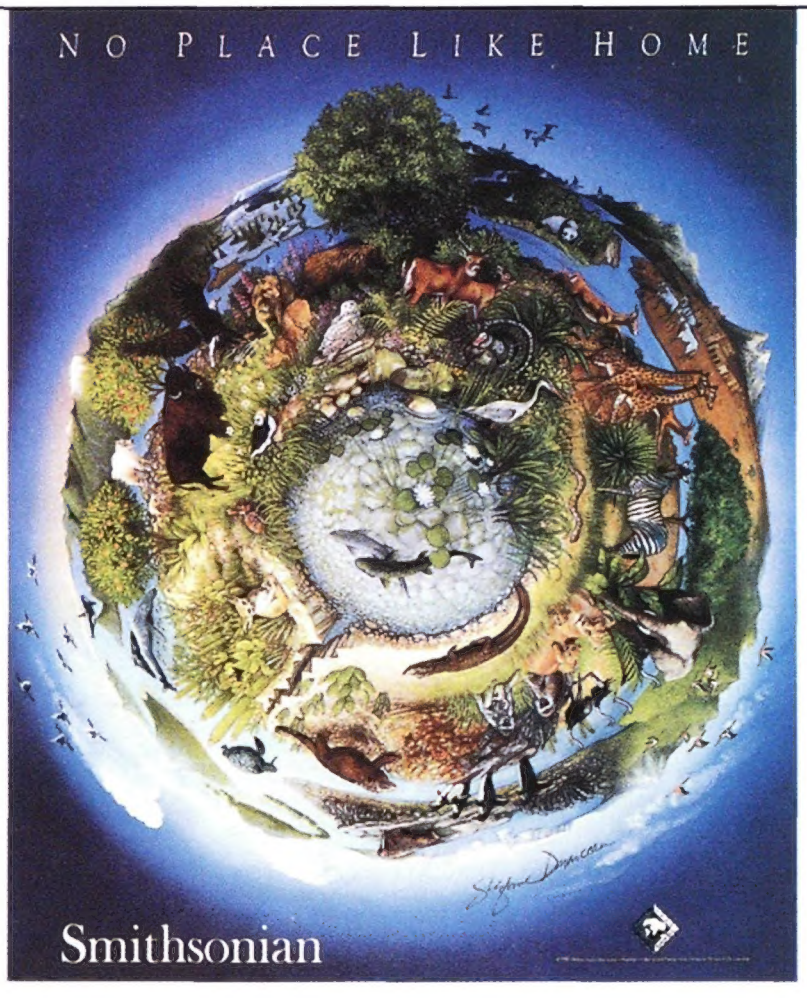

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Smithsonian horizons

Our exhibit on the homeless explores a problem and shows that museums can put things the way they really are

Homelessness is one of the ominously growing social pathologies of our time. "Etiquette of the Undercaste" has been a modest but gripping attempt by the Smithsonian's Experimental Gallery to acquaint visitors with the gritty street ambiance of homelessness, guiding them toward a better understanding of harsh strategies for survival by a multitrack chorus of those caught up in it. While receiving some journalistic plaudits, it has also provoked the occasional reaction that we have gone off the deep end with taxpayers' money or are succumbing to trendiness. Given the uncertainties over how, and even whether, to deal with an important but little-understood theme, the subject may deserve a bit of further discussion here without visual aids.

The numbers of those affected by homelessness are clouded by uncertainty, but a reasonable estimate is that there now are not less than a half-million or so. This represents at least a trebling since the problem first began to attract attention during the 1981-82 recession. Perplexing civil rights issues now are coming to the fore, and the increase has begun to be met by a perceptible hardening of public attitudes.

According to a just-published study by Martha R. Burt, homelessness is rooted in a wide variety of socioeconomic ills as well as personal difficulties. Its closest links are with persistent poverty, so that corrective measures will largely be the same as those to reduce poverty itself. Beyond economic steps to raise earning potential, this focuses attention on possible enhancements in a number of social programs. In view of the federal deficit and current recession, needless to say, all currently foreseeable trends are in the opposite direction.

Poverty is more widespread than homelessness, of course, and does not inevitably lead to it. "For the very poor, life is usually precarious," as Martha Burt observes in *Over the Edge: The Growth of Homelessness in the 1980s.* "Any one of a variety of events can precipitate an episode of homelessness." An actual shortage of low-cost housing units is a major precipitating agent in some cities. Elsewhere, housing may be available, but unemployment, low wage rates or high rates of drug addiction may be more significant.

Thus one cannot readily characterize the "typical" homeless person. Almost three-quarters are single men. Long-term homelessness and joblessness are most common within this subgroup, as are institutionalization for crime or drug dependency. Yet half have completed at least high school, and one-fifth have never been institutionalized. Two-parent families, at the other extreme, account for only about 1 percent of the homeless population. Roughly paralleling their greater exposure to poverty, the proportion of black persons who are homeless is about three times higher than their proportion in the general population.

There are unsettlingly dynamic aspects to the personal problems associated with homelessness. Alcoholism, for example, while generally declining slowly but steadily in the population as a whole, is thought to have increased more than fivefold among the homeless. Drug dependency probably follows the same pattern. The proportion of the homeless who are chronically mentally ill also seems to have risen, a result of widespread closings of mental institutions without any alternative community support systems.

When homelessness is viewed not as a hugely variable series of individual misfortunes but as a national trend of the '80s, it is difficult to escape the impression that major economic forces have been at work—and are still accelerating. Half of the 11.8 million payroll jobs created between 1979 and 1987 reportedly were low-wage jobs, in which a full-time, year-round worker could not earn enough for a family of four to rise above the poverty level. The supply of low-rent housing, especially the often decrepit but most affordable single-room occupancy units (SROs), was already inadequate and shrank further. That occurred even as poor families were decomposing into single-person or one-adult households and becoming progressively poorer and more vulnerable. Resources available through safety-net programs have also declined.

The Smithsonian first gave thought to dealing with questions of housing and homelessness a full quarter-century ago. Charles Blitzer, then one of Secretary S. Dillon Ripley's senior aides (now director of the Woodrow Wilson International Center for Scholars), proposed installation of a crumbling "railroad flat" tenement in what is now known as the National Museum of American History. "The display of the best of the past characterizes our museums," he pointed out to a journalist, "but the best of the past is not the way it really was." Nothing came of the idea, but his view still has resonance. Now ironic in its anachronism, on the other hand, was the basis suggested for delaying the project in an ensuing *Life* magazine editorial: "It might be the better course to rescue such a flat now, then hold it in storage until we have made enough progress in housing so that it would qualify as a curiosity."

I, too, think museums are for how things really are and for what they are becoming, and not only for what we wish could be safely held at a distance as vanished curiosities.

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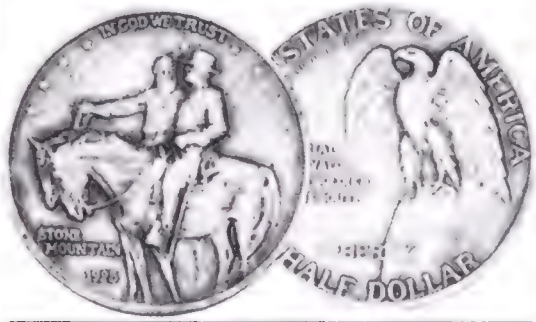

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Letters to the Editor

Smithsonian horizons

Dear Sir: After reading about the loss of biodiversity, species extinction and deforestation in your March issue, I was glad to see that Secretary Adams recognizes the human side of this problem. But he didn't go far enough.

I'm a forest products worker in the Pacific Northwest and right in the middle of the spotted owl-old growth forest controversy. All too often *our* concerns are brushed aside by the scientific community. Jobs and community stability appear to mean nothing. Now, at least Secretary Adams is starting to recognize that we do have a problem.

We desperately need a solution that would preserve the integrity of our forest ecosystems, maintain our rural economies and supply the products we all use. Too often, the last two problems are ignored by the people trying to solve the first problem.

Frank Schenck
Molalla, Oregon

Dear Sir: With unquestionable logic, Secretary Adams demonstrates the overwhelming need, the absolute necessity, of preserving the environment.

But what do we offer poverty-stricken farmers in the Third World, whose only means of supporting their families is by growing illegal plants? They cannot stop and still survive.

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Lawrence C. Trost
Stillwater, Minnesota

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Dear Sir: In response to Secretary Adams' column, there are simply too many people on Earth. The control mechanisms available are war, disease, famine, ecological collapse or fertility control by Man himself. The choice is ours.
Stuart C. Nottingham
Alexandria, Virginia

William Harnett

Dear Sir: Harnett's masterpiece, *After the Hunt*, was the fourth of a series begun in 1884 in Munich.

A favorite pastime of the patrons at the Warren Street bar in New York City, where it hung, was to toss their hats at the painting to see if anybody could catch one on the nail that appears to protrude to the right of the horseshoe. One of the cleverest features is the walking stick; if you look at it closely, you realize it is suspended in space, as evidenced by its shadow.

After the Hunt was one of many paintings the art-minded proprietor displayed, and he closed the bar from 9 to 11 every morning so that ladies could enter to admire the paintings.

In 1940 the painting became part of the M. H. de Young collection in the Fine Arts Museums of San Francisco. Art collector H.K.S. (Harry) Williams, who bequeathed the museums his collection, once dropped by the Knoedler Gallery in New York to see the director, Carl Henschel. While waiting in the office, Williams was immediately attracted to a large painting displayed on an easel. "What's that?" he asked Henschel's secretary. "Oh, that's nothing for you," she snipped. "Mr. Henschel is planning to sell it to Averell Harriman." Irked by her patronizing attitude, Williams bought it on the spot for $6,000.
Ethel Newell
Portola Valley, California

Dear Sir: Being an old-fashioned romantic, I love William Harnett's style of painting. I dabble in painting as an amateur and know how hard it is to even try to obtain such results.

However, one small correction: the pistol shown in *The Faithful Colt* is a .44, not a .45, caliber. The 1860 Army percussion did not have a .45 caliber.

The .44 was the pistol much in use until 1873, when Colt brought out the famous frontier model, the Peacemaker .45, seen in so many Western movies.
Robert Whiter
Los Angeles

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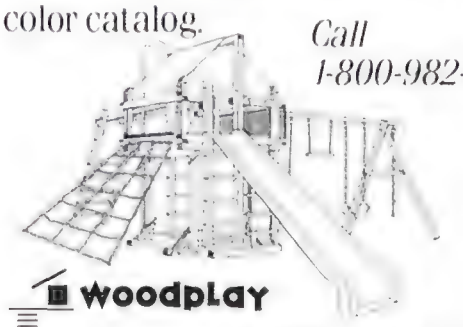

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Log cabins

Dear Sir: When my wife and I decided to build in 1976, we opted for a log house. We went the do-it-yourself way: a chain saw in a forest. When the last spike was driven, our home was paid for—quite an advantage. We ended up with 2,000 square feet of no regrets. The house holds the heat well and keeps it out when it is not wanted.
Robert J. Zets
Warrenton, Georgia

Dear Sir: I was pleased to see the mention of Lincoln Logs, a toy that has delighted children for 75 years. They were conceived by Frank Lloyd Wright's son John in 1916 as he watched workmen build his father's Imperial Palace Hotel in Tokyo.

When a child, I spent hours and days in my sandpile with those wonderful little notched logs, building houses, shops, you name it—landscaping the white sand, making paths and roads, and using twigs clipped from the bushes in our garden for trees and shrubs. My mother's hand mirrors made splendid ponds and lakes.

Mother had the good sense to get my father to put the sandpile on legs on a covered porch, so she never had to contend with a child's whine, "It's raining. What can I do?" To this day, I regret letting them get away from me. I understand that Lincoln Logs, considerably augmented and fancified, are still available from Playskool.
Julia Darby
San Francisco

Dear Sir: You say that Abe Lincoln "learned his ABC's by firelight in an Illinois log cabin."

What a pity he didn't learn those skills during his childhood in Kentucky (1809-16) and Indiana (1816-30). He moved to Illinois at age 21.
Cornelia W. Guthrie
Middletown, Kentucky

The Battle of Manila Bay

Dear Sir: At 84, my great-grandmother, who was born in Montpelier, Vermont, in 1837, wrote a brief memoir. Her brother, George Spaulding, was a schoolmate of George Dewey's.

George Spaulding received an appointment to the U.S. Naval Academy, with George Dewey as an alternate. "Mother was opposed to my brother's

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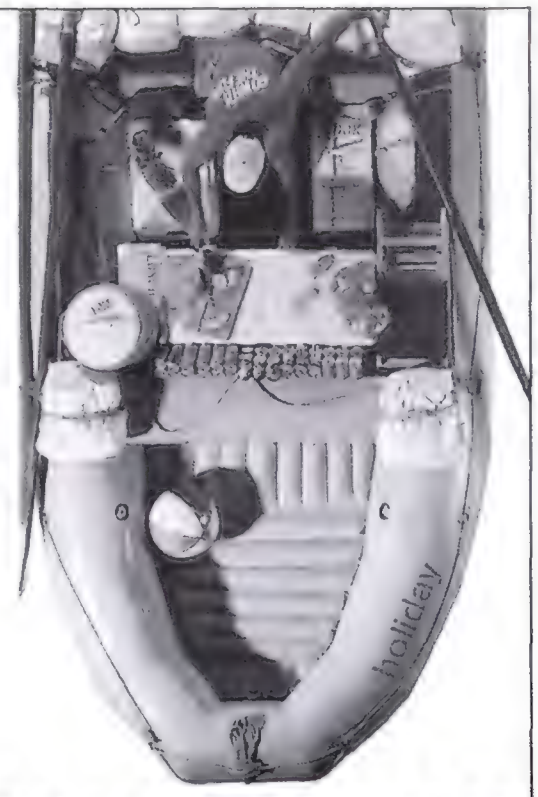

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accepting the appointment [as she had dedicated him to the ministry from birth]," Great-grandmother recalled. Dewey received the appointment. Years after, George Spaulding, high in the Presbyterian Synod, met the admiral and, as they clasped hands, said, "Well, George, I guess you made a better fighter than I would have." The admiral answered with a laugh, "I know you made a better minister than I would."
Carolyn B. Nielsen
Englewood, Florida

Dear Sir: My father was 8 years old in 1899, at the time of the New York reception given for Dewey and the fleet. With other upper Manhattan neighborhood boys, he hiked down to the Battery to glimpse Admiral Dewey and the parade.

When Pop got home he was met by my furious grandfather: he should have been watching his younger brother, not the Dewey parade. Pop got his hide tanned, and for the rest of his life never forgot the day New York City celebrated Admiral Dewey and the Pacific Fleet.
Robert Corrado
Antioch, California

Dear Sir: The *Maine* blew up in Havana Harbor later than you stated, on the night of February 15, 1898. War was declared in April of the same year.
Roberto Pesant
Key Biscayne, Florida
Mr. Pesant is correct. Ed.

Dear Sir: After George Dewey's advancement to rear admiral by an act of Congress in March 1899, the grade of Admiral of the Navy was created specifically for him. He remained on active duty in that grade until his death in 1917. This was the highest grade ever held by anyone in the U.S. Armed Forces until John J. Pershing was promoted from full general to General of the Armies of the United States in 1919. (George Washington was promoted posthumously to General of the Armies of the United States in 1976.)
Philip J. Rush
Arlington, Virginia

Ambrose Bierce

Dear Sir: Bierce's review, "The covers of this book are too far apart," may be the best short review that was ever written, but it is not the shortest. That honor probably goes to a late 18th-century review of a novel with the silly title *Is This a Novel?* The full review was "No."
Edward C. Sampson
Killingworth, Connecticut

Dear Sir: In 1900 William Goebel, governor-elect of Kentucky, was shot dead. Bierce, active in William Randolph Hearst's press attacks on McKinley, wrote in the *New York Journal*: "The bullet that pierced Goebel's breast/Can not be found in all the West. / Good reason: it is speeding here / To stretch McKinley on his bier."

This was strong, even for those contentious times, and when McKinley was assassinated in the following year, Hearst and Bierce were denounced for inciting murder. The damage to Hearst's reputation thwarted a political career that he had hoped would bring him to the Presidency. The duo's connection with the killing was solidified in the public mind when President Theodore Roosevelt, in a message to Congress, referred to the crime as instigated by utterances in the press.
Emanuel Finkel
Brooklyn, New York

Dear Sir: One outré explanation for Bierce's disappearance came from the pen of the great James Thurber. In "The Admiral on the Wheel," a sketch about his own myopia, he speculated that Bierce also had poor vision, which caused him to wander into oblivion.
Terry Bigham
Bristol, Rhode Island

Hubble Space Telescope

Dear Sir: Given the country's urgent need for education, health services and, most important, a sense of purpose and a respect for competence, it is little less than shameful to so blithely pass over the waste, disorganization, and governmental and professional failures marking the Hubble project.
Sidney R. Nusbaum
Boynton Beach, Florida

Book reviews

Dear Sir: The story is often told in California history that when Gertrude Atherton's husband, George, died at sea en route to Chile, his body was placed in a barrel of rum and shipped back to San Francisco for burial. When the body arrived it was well preserved.
Dorothy Livingston Prescott
Scotts Valley, California

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Phenomena, comment and notes

Good news from Great Inagua: one of the world's eminent flamingo colonies is doing nicely, thank you

Normally I steer clear of serious birders. It's a reflection not on them but on me and my ornithological weak points: shorebirds, flycatchers, gulls, warblers, terns, hawks and sparrows, for example. I not only cannot identify those birdsongs that I can still hear, a crucial skill, but I can't even tell what directions the songs are coming from. Besides, low-key birding has its own attractions: you can go out and play in the mud of the nearest marsh, and while people may think you are crazy, they do not call their children inside when they see you coming.

Serious birders are often what is known as "listers." Their goal is to add to the list of birds they have seen, whether it be in their yard, their home state or all of North America above Mexico (700 is the Holy Grail for that last). A few are obsessed, ready to drop work and family and rush to the airport as soon as they hear, through a network of hotlines, that a rare bird has been spotted in some other part of the country.

The thing about serious birders, however, is that they have their priorities in order. They go to wonderful places. (Not always, of course; sometimes the really dedicated ones head for the Aleutians.) Toting arsenals of glass lenses that together are worth more than my car, they choose spots like the Everglades in Florida or Cave Creek Canyon in Arizona. Often, they head for water; in my part of the country that means the wildlife refuges that dot the Middle Atlantic coast. Now I always head for water myself, even if it's only a ditch at the side of a field. So from time to time I find myself in a car with the kind of people who call out "Gannet!" when all I can see is a dot on the horizon.

Thus it was, a few weeks ago, that I felt privileged to be in the back of a truck careening along the dikes of the salt evaporation ponds on Great Inagua Island. This is the southernmost of the Bahama Islands, 380 miles southeast of Nassau as the white-tailed tropicbird flies. The 596-square-mile island lies in the approaches to the Windward Passage, between Cuba and Haiti. U.S. Coast Guard helicopters fly out of the local airport.

We stayed in a guest house operated by the Morton Salt company, which now runs the evaporation process. We drank water from Georgia, brought in the ships that carry the salt away. Most of all we birded—on the road before sunrise, in the heat of the day, as the sky grew too dark to photograph what we saw.

Do you ever get motion sickness? You know that queasy, nauseous, dizzy feeling?

We had come to see the flamingo colony, between 40,000 and 60,000 of the pink filter-feeders that have inspired all those lawn ornaments. And flamingos we would see, stretching to the horizon. The two serious birders in the group, unabashed listers, wanted to see everything else, as well—especially the Bahamian subspecies of the Cuban parrot. In the Bahamas, of course, it is the Bahama parrot, and because it doesn't look as if many of us will get to Cuba anytime soon, let it be the Bahama parrot.

We arrived in Inagua one Saturday afternoon, too late to see the flamingos. We did find Jimmy Nixon, one of the two wardens (and brothers) who brought the Inagua flamingo colony back from the precipice. His brother, Samuel, has since died, but Henry Nixon, Samuel's son and Jimmy's nephew, has taken his place. They are *the* people to see for any biologist or naturalist who makes it to Inagua. Not only are they happy to guide birders such as we were, but they will catch sea turtles (by jumping into the water and wrestling them into a small boat) for visiting researchers.

Because it was too late in the day to drive out to where the flamingos were, they took us to Northwest Point to look for parrots. We drove through coconut plantations and on into an area of scrub dotted with cornfields and abandoned buses. As we parked in one spot, eight or ten parrots noisily fled a tree right next to us. No one got a good look, but it seemed the parrot would be easy. In fact we would not see one well until our last night on another island, our last chance as the sun headed for the horizon.

By the end of our visit we would see Bahama swallows and woodstars (the latter an endemic hummingbird); white-cheeked pintails and white-crowned pigeons; stripe-headed tanagers and thick-billed vireos—even reddish egrets in the white phase, recognizable by their bicolored bills. But the parrots, the parrots. . .

Color Sunday pink. We drove out past the saltworks, past the single inlet from the sea that supplies all those miles of ponds. We headed out onto the dikes, easing past wild donkeys, wondering if any of the drivers of other trucks were poachers.

Dikes crisscross what was a huge, shallow lake extending into the center of the island. Water from the sea is led all the way into the middle to begin the evaporation process; as it becomes saltier and saltier, the water is moved back toward the plant, so that harvesting of the salt takes place close to the dock from which ships will carry it away.

Only a few miles from Matthew Town we begin to see flamingos, almost always in flocks. Separate and distinct flocks are in each pond, some of which are measured in miles. I count the birds in one of many flocks in one pond: 235. Some are flying; on the horizon you get the same impression of pre-Encounter biological richness you do watching snow geese in the salt marshes at Bombay Hook National Wildlife Refuge in Delaware, or sandhill cranes along the Platte River in Nebraska.

Occasionally single birds would fly over the dike ahead of us. They fly with necks and legs fully extended and drooping slightly from the horizontal. They look like the beginning of a drawing lesson, with a football shape in the center and the legs and neck almost stick-figure thin. The colors of a mature

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Transderm Scōp should be used with special caution in the elderly or in individuals with impaired metabolic, liver or kidney functions, because of the increased likelihood of CNS effects.

Information for Patients. Since scopolamine can cause temporary dilation of the pupils and blurred vision if it comes in contact with the eyes, patients should be strongly advised to wash their hands thoroughly with soap and water immediately after handling the patch.

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Patients should be warned against driving a motor vehicle or operating dangerous machinery. A patient brochure is available.

Drug Interactions. Scopolamine should be used with care in patients taking drugs, including alcohol, capable of causing CNS effects. Special attention should be given to drugs having anticholinergic properties, e.g., belladonna alkaloids, antihistamines (including meclizine), and antidepressants.

Carcinogenesis, Mutagenesis, Impairment of Fertility. No long-term studies in animals have been performed to evaluate carcinogenic potential. Fertility studies were performed in female rats and revealed no evidence of impaired fertility or harm to the fetus due to scopolamine hydrobromide administered by daily subcutaneous injection. In the highest dose group (plasma level approximately 500 times the level achieved in humans using a transdermal system), reduced maternal body weights were observed.

Pregnancy Category C. Teratogenic studies were performed in pregnant rats and rabbits with scopolamine hydrobromide administered by daily intravenous injection. No adverse effects were recorded in the rats. In the rabbits, the highest dose (plasma level approximately 100 times the level achieved in humans using a transdermal system) of drug administered had a marginal embryotoxic effect. Transderm Scōp should be used during pregnancy only if the anticipated benefit justifies the potential risk *to the fetus.*

Nursing Mothers. It is not known whether scopolamine is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Transderm Scōp is administered to a nursing woman.

Pediatric Use. Children are particularly susceptible to the side effects of belladonna alkaloids. Transderm Scōp should not be used in children because it is not known whether this system will release an amount of scopolamine that could produce serious adverse effects in children.

ADVERSE REACTIONS
The most frequent adverse reaction to Transderm Scōp is dryness of the mouth. This occurs in about two thirds of the people. A less frequent *adverse reaction is drowsiness, which occurs in less than one sixth of the* people. Transient impairment of eye accommodation, including blurred vision and dilation of the pupils, is also observed.

The following adverse reactions have also been reported on infrequent occasions during the use of Transderm Scōp: disorientation, memory disturbances, dizziness, restlessness, hallucinations, confusion, difficulty urinating, rashes and erythema, acute narrow-angle glaucoma, and dry *itchy, or red eyes.*

Drug Withdrawal: Symptoms including dizziness, nausea, vomiting, headache and disturbances of equilibrium have been reported in a few patients following discontinuation of the use of the Transderm Scōp system. These symptoms have occurred most often in patients who have used the systems for more than three days.

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bird (the young are almost white) are too good to be true: deep pink, with contrasting black on the wings' trailing edges.

After two hours we arrive at the end of a small peninsula where the Bahamas National Trust has established a camp: two bunkhouses, one outhouse and a roofed dining area. We have coffee; we look around our watery horizon, picking out the pink patches of flamingos. The listers walk back along the dike, looking for snowy plovers. I revert to childhood, wading among the mangroves, stirring up the black muck just beneath the pastel surface of the sediments. Jimmy Nixon, about to mark his 77th year and 40th as warden, is looking through a spotting scope.

"They're doing their courtship dance," he offers quietly.

I fumble with the focusing knob. There emerges from the shimmering heat waves one of those sights that stays with you forever. Flamingos, perhaps two dozen, are promenading in slow, stately circles, their necks straight up. At times their necks sway in unison as they move. Occasionally one flamingo catches another's bill in its own and pulls it down to the surface of the water. Once in a while one leaps and pecks at another, which backs away.

From time to time they all line up facing the same direction, with their backs to us. It looks like nothing so much as the scenes in the stage musical *Grand Hotel* in which all the telephone operators, the dishwashers and the odd chauffeurs are lined up in the basement, backs to the audience, swaying with slight movements and incredible potential energy as the principals do their thing downstage.

As the flamingos practically vibrate with the energy of the urges rising within them, one of them raises its wings enough to flash the inky black of the trailing edges. Another does it, and another, until perhaps half the group is signaling. In 15 minutes or so, the show is over. Heads begin to drop, and the whole group is feeding again, swinging their heads underwater through the same calcareous muck. Were any alliances formed? I could not tell.

We are destined never to get close to any flamingo. The water level has dropped, now too shallow for a boat. We can't drive farther out on the dikes without a four-wheel-drive vehicle. The wardens have one but it is broken down.

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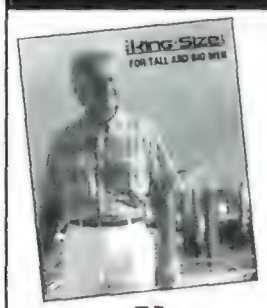

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A flamingo raises its wings, flashing the black trailing edges, as part of its courtship ritual.

and the prospects for repairing or replacing it apparently are not very good. At first, seeing the birds only at a distance is a disappointment after years of exposure to extreme close-ups in photographs and wildlife films. It is like watching a football game in person when you are accustomed to seeing close-ups of a lineman's right eyebrow on television. Backyard astronomy is an even better analogy. Woe to the viewer who first looks through his 6-inch reflector after years of looking at photographs taken with 4-meter behemoths. Those page-filling spiral galaxies are only dim blurs.

In Nassau, Pericles Alexander Maillis, president of the Bahamas National Trust, had told us that the Great Inagua flock had grown so well that a new colony was formed on Acklins Island about ten years ago, and last year two rookeries were discovered on Andros Island. The credit, he says, is entirely the Nixons'. When the birds disperse at the end of the breeding season, some fly to other islands. Those that go to Haiti are believed to be killed and eaten. Some go to Cuba, where their fate is unknown. It is possible that a few have made it to Florida Bay and the Keys. For the moment, the flamingos are doing all right.

The next day we drove out on the dikes again, checking off wading birds, shorebirds, even warblers. Well into flamingo territory, the group decided, with the simultaneity of a bird flock wheeling as one, to go parrot hunting instead. The Nixons took us past Northwest Point this time, all the way to the mouth of Union Creek, where scientists hold turtles until their research is done. Beautiful beaches. Green and turquoise and indigo water. Lots of birds. No parrots.

Tuesday we were leaving Inagua. So we were out of the guest house by 6, back to Northwest Point by sunup, desperate to hear a squawk. While walking along a road, one of our party flushed a parrot, but the bird was gone in a flash of green and blue before anyone else got a good look. We had been skunked.

(The day was no loss, however. At the airport I took a

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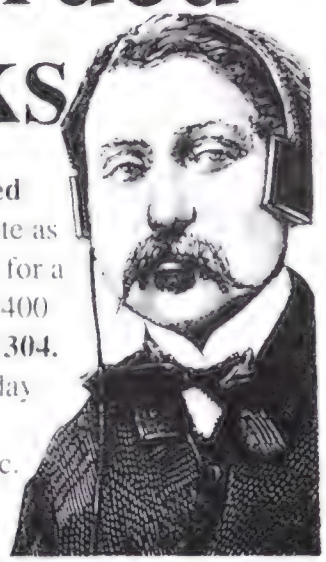

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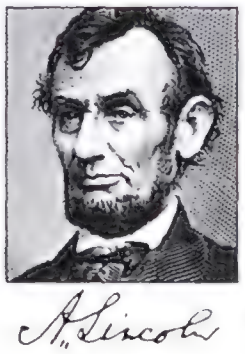

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little walk. Hearing a squeaky call above me, I looked up to see an American kestrel, formerly called sparrow hawk, flying overhead. During our stay on Inagua, the bird had been of some interest to the group because it is a subspecies found only there and on San Salvador. But kestrels are commonplace around Washington, D.C. I had nearly turned away when I realized there were two. One, presumably the female, was flying straight and level. The second, presumably the male, would dive below her flight path and then swoop up to soar high over her head, calling all the time in four-squeak segments. It reminded me of a sixth-grade boy, enamored of the sixth-grade girl he has finally found the nerve to walk home from school. To impress her, he walks the top of a garden fence as she, seeming to pay no attention, continues demurely along the sidewalk. Clearly the kestrels were feeling the same urges as their larger relatives. Courtship seemed contagious.)

Later our intrepid group flew on to Abaco and, in one 17-hour marathon, finally had a good look at the Bahama parrot. Better ears than mine heard a commotion as we drove through a pine forest on our way to the lighthouse at Hole in the Wall. We jumped out and stumbled across broken limestone to see a small flock moving through the trees. We drove out of the Sandy Point Forest Reserve at dusk, only to find two more parrots squawking at us (parrots don't laugh, do they?) from a pine tree by the side of the main road.

The resulting list of which birds we saw on which islands is impressive. I feel like a ballplayer in the low minors allowed to spend a day in "the show," the big leagues. But what I'll remember most are not what a colleague calls "tweety birds," even if they were such exotics as the Cuban grassquit and the Greater Antillean bullfinch. What I still see so well is a vision. Part of the time on the dikes of Inagua we were under heavy clouds. A stiff breeze (the tradewinds) was blowing. The water, no matter how bathlike, looked cold. But often, as we stood in deep shade, looking around us, there would be a patch of sunlight in the distance, one spot where full sun burned on the water. And in that patch of light would be the tiny pink flames of distant flamingos. It was a vision of the future, one in which the magnificent do survive.
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It's not easy going eye to eye with today's newfangled fires

Now I could appreciate how the Cowardly Lion felt when the Wizard told Dorothy to approach the throne. Our group was inching up to a 500-gallon propane tank heated from underneath by big blue flames from an oversize burner. A white jet of gas screamed straight up through a safety valve. A split second later the gas plume ignited with a boom, creating a 50-foot-high flame that roared like a rocket trying to drive itself through the Earth. Though it was well after dark in the Rocky Mountains, the flare lit the area to high noon.

And, like Dorothy and her friends facing the Wizard at the Emerald City, we were holding on to each other as if for reassurance. I grasped the sleeves of the lead firefighters manning the hoses on either side, and a safety officer behind held on to my jacket to keep me steady. The water, flashing into steam as it met the flame, kept the air around us cooled to a tolerable 500 degrees F. We took tiny shuffling steps in cadence, careful not to trip over any of the hoses.

Once I reached the propane tank, my job was to spin the fuel valve closed without dawdling, then pull the group back. I marveled at how the spray allowed me to lean over a solid sheet of blue-white flame a mere foot below my Nomex sleeve. It was like looking into a forcefield designed for the year 2092.

I was just passing through, but for the rest of the group—mostly volunteer firefighters—such training means survival in real-life hazardous situations. Two weeks after firefighters from Sonora, California, had attended a similar Ranger Fire School course several years ago, the driver of a propane tanker truck mistakenly opened the wrong valve while parked at a bulk transfer plant. The leaking vapor ignited, and flames raced back to the tanker, which caught fire and threatened to breach a 40,000-gallon storage tank. Big tanks upon exploding have been known to throw hunks of steel the better part of a mile; within 800 feet of this fire were a hospital and a convalescent home.

Just as Ranger instructor Archie Moore had taught, the Sonora firefighters began by pumping huge volumes of water onto the tanks to keep them from softening under the heat. Meanwhile, police located the driver, who had taken refuge in a phone booth. Behind the conelike protective spray, a firefighter

Photographs by Layne Kennedy

But somebody's got to do it. In the old days, hot ears told firefighters to back off; now, with high-tech fires, they need high-tech response

By James R. Chiles

A student group trains hose on a blazing trailer in a "live fire attack" at the Colorado Fire Fighters Academy. The spray, which forms a "wide fog pattern," is a defensive action against the fire's intense heat.

"Hazmat" suits (above) provide protection against (from the left) acids and solids; gases; and oil- and petroleum-based fires. Suited firefighter (opposite) tackles simulated tanker leak at Colorado academy.

walked the driver back to his truck, where he twisted the open valve shut. Two minutes and 18 seconds after pulling up, with the right tactics and a lot of water, the volunteer fire department had taken the setting for a world-class disaster and reduced it to a blackened tanker and a set of burning truck tires.

The Ranger Fire School, which offers its training workshops around the country, is one of the many ways the nation's 1.6 million firefighters prepare to meet the hazards of tomorrow. An occupation once bound by tradition, and fearless to the point of recklessness, the fire service now shows a keen interest in keeping up with the dangers of technology when it catches fire, explodes or collapses.

The list of dangers keeps getting longer. A candle-size flame catching hold in synthetic upholstery can turn a room into an inferno of flame and poisonous gas in three to five minutes. A formula resembling rocket fuel has been concocted by a small band of arsonists in the Pacific Northwest: it can ignite unstoppable building fires hot enough to vaporize steel. Hoppers, pipes and tanks in sprawling industrial complexes can become traps for workers and the firefighters who try to rescue them. New, lightweight, truss-type roofs and floors make homes affordable, but also crumple quickly in a fire, risking the lives of firefighters.

I interviewed fire officials around the country and spent time with departments in Los Angeles and Colorado to see what the service is doing to stay ahead of the fire king. All are making do with less money, even as demands increase. Fire Chief Richard Marinucci of Farmington Hills, Michigan, says that some departments send out engines with only two firefighters aboard. "Our busiest engine company had 300 calls a year 25 years ago," says Seattle Deputy Fire Chief Stewart Rose. "Now it's up to 3,000 calls a year."

The Oakland holocaust of October 1991, at a cost of 25 lives and $1.6 billion in damage, is a reminder of the terrible havoc that a single fire can cause when it gets out of control. Nationally, fires still claim more than 5,500 Americans a year. It's a fearsome toll, but compare it with 1971, when nearly twice that number died. The reasons for the drop are better prevention and containment, and improved firefighting and rescue techniques.

Begin with the all-important prevention side. It's lunchtime and I'm on the 42d floor of the Southern California Gas Company tower, a new skyscraper in downtown Los Angeles. Followed by eight representatives of the builder and manager, city fire inspector Jesse Franco takes a whirlwind tour of the upper floors where construction has just been completed. For the building owners, Franco has the magnetic pull of a celebrity, because a bad report from him can derail any fast-track occupancy schedule. No new commercial building in Los Angeles higher than 75 feet opens without a say-so from the fire department's High-Rise Unit. And once open, every tower will receive an annual follow-up visit from the unit, which inspects more than 700 buildings every year.

Franco nods toward a corner at the end of a hallway. A technician triggers a smoke detector in the ceiling with a rod; seconds later, a warning signal sounds through recessed speakers, and a steel shutter slams down, closing off a utility area. Franco nods, checks off an item and leads his entourage off in a rush.

Without fire codes, the potential for high-rise disas-

ter in the nation's cities would be awesome. If stairwells were not designed to exclude smoke and flame, a fire on the lower floors of a big skyscraper could trap thousands of office workers above. The city's rules now call for sprinklers, water outlets and smoke alarms on every floor; fire-rated doors and walls; helicopter landing pads on the roof; insulation sprayed on every exposed steel beam; and hundreds of other details.

I notice that every fifth window in the Gas Company Tower has a little decal marking it as "tempered," meaning that when broken it will crumble into tiny pieces. These windows would have been helpful during the 1988 First Interstate Bank fire in Los Angeles, among others. The tower's high-strength windows, when smashed, broke into long shards that sailed a hundred feet or more from the building, cutting hoses and threatening firefighters like flying guillotine blades. One shard punched through the roof of a car. In the building that is being inspected today, firefighters would know which windows they could break safely to let smoke out.

All of these precautions in skyscrapers are useful and even vital, but if they had to, firefighters would trade away every requirement but one: a good sprinkler system. When a fire takes hold in a skyscraper without sprinklers, says Kevin Mellott of the fire-safety consulting firm Erase Enterprises, "you can just kiss it goodbye. A big high-rise fire is capable of beating the [expletive] out of a thousand firefighters and coming back for more." An all-out effort by the Philadelphia Fire Department couldn't stop the One Meridian Plaza fire of 1991, which burned out eight floors and killed three firefighters, but sprinklers on the 30th floor did.

"Ninety-six percent of the time, when the sprinkler system was operational in a modern building," Mellott adds, "the fire was extinguished or held in check until the fire department got there." Many communities require sprinklers in all new commercial and apartment buildings, but few require them in new houses. Los Angeles County requires sprinklers in all rural housing not connected to water mains, at a minimum cost of about $2,000. Firefighters give smoke alarms and sprinklers most of the credit for the drop in fire deaths. "Prevention is gaining momentum," Mellott says. "Chiefs no longer have the budget for massive firepower." As Fire Chief Marinucci puts it, "A new aerial truck costs up to a half-million dollars. How many smoke detectors could you buy for that kind of money?"

In the new era of fire and disaster services, special problems and solutions are found on the waterfront. One of the earliest hazardous materials was something we all take for granted: creosote-treated wood. Firefighters at wharf fires complained that smoke from burning creosoted pilings caused lung problems and severe skin irritation. The fires usually lay hidden under pavement, and firefighters spent hours blundering

Frequent contributor Jim Chiles, who went far beyond the call of duty in reporting this story, plans to install a sprinkler system in his next home.

Sparkling 30-year-old fireboat, one of five in the Los Angeles city fleet, is slated to be joined by a completely computerized, state-of-the-art model with remote-control turrets and a hazmat room.

through the choking fumes, chopping random holes until they located the fire. In the early 1960s, departments began using scuba divers equipped with floating nozzles supplied by hose from a fireboat. Using the back-thrust from the nozzles, the divers steered themselves deep into the wharves, between the pilings, then doused the fires from underneath.

Though some such wharves remain, they're diminishing as a fire hazard. "Our tactics are continually changing along with technology," Los Angeles City pilot Mike Corcoran tells me aboard Fireboat 2. "We've tended away from wharf attacks and more toward shipboard firefighting." Typical of marine fires today is a smoky, concealed blaze on board a containership; firefighters go aboard and hunt among thousands of 40-foot containers for the offending box and douse the fire with carbon dioxide or water. Infrared detectors aid the search.

Corcoran's red-and-white fireboat—though built in 1925 and designed to handle huge wharf, petroleum and shipboard fires—has been adapted to meet new firefighting demands. The department added a hydraulic lift arm with a basket on the end, allowing the boat to put firefighters on ships with high decks. But its original bronze pumps can still pump 18,000 gallons of seawater a minute and launch it far enough to reach a ship 500 feet away.

Fireboat 2 is perhaps an extreme example of longevity, but all fire departments plan on long lives for their machinery. In Los Angeles County a fire engine bought today is likely to stay in daily service through 2012, and then will go on the reserve list through 2017.

The basic pumper is still a good investment because large quantities of water remain a cheap and highly effective tool. Chemicals have earned a place but are too expensive or problematic to replace water for regular use against building fires. For example, chemicals in the halon family snuff fires in electronic equipment, but they are expensive and their use contributes to damage of Earth's stratospheric ozone layer.

During the 1988 Yellowstone National Park fire, firefighters saved many buildings with a new type of water-based foam employing an additive similar to liquid soap. Los Angeles County fire stations began experimenting with a similar foam two years later and found it so effective the county now plans to equip all pumpers with it.

To get a feeling for how the classic hook and ladder station is adapting, late one evening I visit city-operated Fire Station 11, near Los Angeles' MacArthur Park. With more than 20,000 calls in 1990, Fire Station 11 is one of the nation's busiest. Its calls have been driven up by a dense and transient population, drug use and gang activity. There are so many rescue calls that fire is almost an afterthought. "We only spend 3 to 5 percent of our time at fires," firefighter Rick Erquiaga tells me. The rest of the time is consumed by assists for medical calls, fire inspections, training sessions, and station and equipment maintenance. An alarm sounds as we talk, and two paramedics prepare to answer the medical call. They don dark blue vests before adding their bright yellow rescue coats. Bulletproof vests, says Erquiaga. "We always wear them on family disputes, assaults and shootings." I am told that gangs usually hold their gun-

fire when fire engines and paramedics arrive, though occasionally, while paramedics are still working, gunmen will circle back to ensure that their victim has died.

Along with new problems, the station has new solutions. A computer display mounted in the fire engine's cab shows the driver the truck's exact position and direction on a detailed street map, along with all the water hydrants. In the near future, automatic radio links will transmit the truck's location to the city's new communications center. That way, a dispatching computer will know the unit nearest to the address of a 911 call and be able to shave seconds off the response time—seconds that might well mean someone's life. The same radio network already can save a firefighter's life: finding himself trapped in a building, he can press a red emergency button on his personal radio set; this triggers an alarm at headquarters, where a computer informs dispatchers whose radio sent the call for help. Dispatchers then relay the emergency to an officer at the scene. The station's firefighters also carry a small orange device that blares if it remains stationary for a half-minute—usually meaning the wearer has been overcome or injured and needs immediate help. Erquiaga activates one and sets it on a ledge; 30 seconds later it squawks for help.

At the Colorado Fire Fighters Academy, a training conference held annually in Durango, I see a demonstration of the fire service's high-temperature "bunker" clothing. Even though this type of clothing was available in the mid-1970s, very few firefighters started using the equipment until the mid-'80s. Now these composite suits are almost universal.

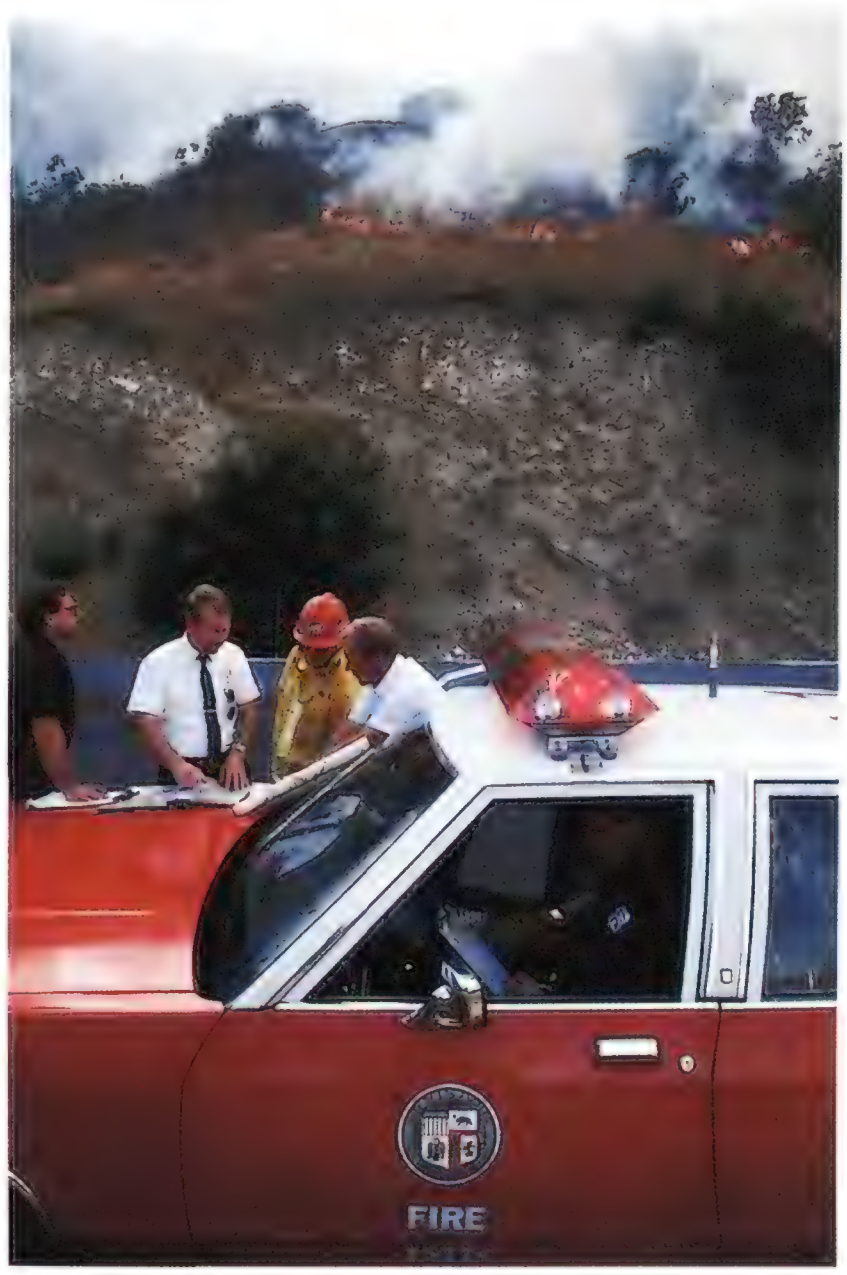
Complaints of feeling too mummified

Some firefighters have mixed feelings about this protection, which costs close to $3,000 for clothes and breathing gear. Made of Kevlar, Nomex, PBI and other space-age fabrics, the suits shield them from heat, and the air gear protects their lungs from the toxic fumes of today's fires. But they complain of being so mummified that they have no way of sensing when a room is overheated and ready to flash into flame. Traditionally, explains Tom Smith of the U.S. Fire Administration, firefighters used their exposed ears as heat detectors.

"Our new bunker gear lets us get into deep-seated fires that we have no business being in," fire officer Hubert Albrandt, of Longmont, Colorado, tells a class at the academy. He warns the group that modern fire-resistant clothing, if pushed too far, gives way suddenly by melting onto the firefighters. "If it gets that hot," he says, "any citizens in that room aren't going to be alive anyway." Albrandt goes on to describe the danger signals that should alert fully suited firefighters that their surroundings are getting too hot: the air from their tanks turns warm, and vapors begin rising from upholstery and carpets. "If fabrics are steaming," he says, "it's almost time for a flashover."

Concerns about overprotection notwithstanding, there's no going back to the old days, when firemen went into smoke holding only wet hankies over their faces. In fact, the future holds even more protection. NASA has developed lightweight liquid-air packs capable of furnishing hours of air. A British firm sells an astronaut-type helmet that seals around a firefighter's face, hooks directly into a self-contained breathing apparatus and offers the option of a complete communications system with built-in radio headset and microphone. The deluxe model is mounted with a miniature thermal imaging camera and a tiny display module so the wearer can locate survivors through dense smoke.

To give us an idea of how well modern protective gear works, the Colorado academy suits up photographer Layne Kennedy and me and allows us inside a



In Los Angeles last October, a rushed meeting is held to plan strategy against Griffith Park brushfire.

Just before dangerous flashover, academy participants kneel beneath 800-degree-F heat in smoking trailer.

Following a trailer-fire exercise, called a "live fire attack," teacher Hector Lagomasino debriefs students.

house trailer during a "live fire" training exercise. Remember the hat, high rubber boots and overcoat of the traditional fireman? They are gone; the gear now is half astronaut, half Indy race-car driver. We end up in heavy, yellow Nomex pants and overcoat; fire-rated helmet and visor; treated leather gloves and boots; and Nomex pullover hood covering all but the face, leaving room for the helmet and a tight-fitting mask to receive fresh air from a scubalike tank on our backs. I feel like a potato wrapped in foil ready for baking.

A few minutes later, I change my mind about the discomfort. As smoke from the burning interior thickens, filling the trailer with an ugly brown layer that hugs the ceiling, the air from the tank suddenly feels fresh and cool. Capt. Tom Kaufman, our safety officer, estimates that the temperature at the ceiling is close to 800 degrees F.

On a third trip into the trailer, Kennedy has the opportunity to see how well the gear performs under fire. The smoke ignites in a flashover, filling the trailer with 1,200-degree-F flame. Even the best fire-rated clothing cannot tolerate such heat for more than a few seconds, so the eight men in the trailer make an orderly exit after spray from a fire hose pushes back the flame. "If you had been in there without that gear," one firefighter tells Kennedy, "you'd be dead now." It's almost a badge of honor among some firefighters to sport smoke-stained bunker gear, with edges of the reflective tape melted to a blackened crisp. On the other hand, instructor Hector Lagomasino, who was tempered by urban firefighting experience in Dade County, Florida, before moving to Colorado, tells me that he regularly cleans his bunker gear with a high-pressure water hose at a car wash.

The unheralded part of the job

I tag along as Lagomasino inspects the charred walls in the trailer. Every building fire, whether trailer or skyscraper, is followed by such a process, called "overhaul." Overhaul is the part of the firefighter's job that news cameras rarely record; it's also the only way to prevent the rekindling of a fire hours later. Firefighters drag out furniture and pull down ceilings to soak any lingering embers. Increasingly they are being told to wear breathing gear during these hours of hard work, but some still don't. Capt. Richard Anderson of Minneapolis tells me that he wonders whether this exposure will cause a new spike in lung cancer rates in future years. "The number one cause of death for firefighters is cancer," says consultant Kevin Mellott. "The word on the street is that synthetic materials are responsible. While this is probably right, there's never been a good study of the baseline for cancer."

Fires and accidents claim many victims, and their rescue usually falls to the fire service. The possibility of saving a life is the main reason a firefighter runs into a burning building when everybody else is heading in the other direction. When no lives are at stake and a fire is out of control, standard procedure is to protect nearby buildings and get water into the structure: "surround and drown," in fire lingo. Crouching low or crawling, firefighters search each room for survivors—by feel, when the smoke is thick. It's in stressful times like these that a firefighter can use up a 30-minute tank of air in 15 minutes.

One way that fire services train their people for this work is to send them through a dark "confined-space maze" wearing full bunker and breathing gear. Maze training has been spurred by alerts from the National Institute for Occupational Safety and Health, which found that of all the deaths recorded in confined-space emergencies, two out of three were of would-be rescuers.

Crawling blind through a living room

In Los Angeles County, the maze, which simulates an earthquake collapse, is a multilevel plywood labyrinth with cramped stairs, ledges and a short ladder, barely big enough to crawl through. Virginia's Fairfax County Fire Department uses concrete manufacturing plants and sewage treatment facilities for its rescue exercises. But the training can be as simple as sending a participant crawling through an unfamiliar living room with his or her mask taped over. With all senses cut off or muted, rookies find that the most difficult part is getting out. They learn to place beacons by doorways and to follow a fire hose back to safety. Most important, they learn how to control their fear.

"Research on the body shows that stress-filled situations like these trigger the release of more than 700 different chemicals," Capt. Wayne Ibers tells me. Ibers is an urban search-and-rescue specialist for Los Angeles County. "The maze is anti-panic training for firefighters. We give them information to help reduce the stress, to know the difference between anxiety and panic. Anxiety is good to a certain extent. It's good to have that little butterfly in your stomach. You're alert, wide-eyed, bushy-tailed and ready to go."

That's one way to describe how I feel during another Los Angeles County Fire Department exercise, with water-rescue instructor Roger Wilhelm. Employed as a firefighter specialist in one of the county's hazardous-materials squads, Wilhelm is qualified to teach open-water rescue by virtue of his military training. During the Vietnam era he was a member of two elite U.S. Navy teams—Underwater Demolition and the SEALs.

Wilhelm has me up in a helicopter, dressed in a wet suit, standing on a skid, ready to jump into the Castaic

British-made helmet, equipped with microphone and headset, can withstand 1,800-degree-F temperatures.

Lake reservoir. I am participating in the tail end of a session to train 15 firefighters for ocean rescue, in the event of an airline crash in the waters off Los Angeles International Airport. The copter has already made several passes, dropping rescuers in pairs, who have inflated a big yellow raft.

A thumbs-up sign from the jumpmaster, and Wilhelm and I drop ten feet into the water. Wallowing around trying to get my flippers on, with the copter hovering above, I can understand how disoriented a victim might feel in such a situation. The helicopter's rotors are deafening and blow water in my face like a waterspout. But the copter has its advantages; it edges closer after Wilhelm and I are aboard the raft, and we begin plowing through the water like a slow motorboat. The pilot is using his rotor wash to propel the raft toward a dock.

Ocean rescues are just one part of the bigger role that firefighters find themselves training for these days. Even fire department helicopters have a split personality now: besides being good for dropping ten firefighters at a time into the drink, Los Angeles County Fireships 16 and 17 are each equipped with a hoist and spotlight for cliff rescues and a 360-gallon tank for dumping water on wildfires.

The evening after my simulated ocean rescue, I have the opportunity to watch a real helicopter rescue by the Los Angeles City Fire Department. A 55-year-old man has tumbled down a seaside cliff at Point Fermin. Firefighters climbing across the rocky headland find him unconscious but alive. As the sun sets over the Pacific, two helicopters arrive. The smaller one takes up a position at the side and throws a spotlight. The other lowers a paramedic and then a rescue cradle called a Stokes basket. Within five minutes the injured man is aboard. Onlookers clap as the helicopter arcs into the sky and heads for the hospital.

Such helicopters represent one extreme of fire department medical equipment. For the average person at the other end of a fire call, the medical help arrives via the common fire engine. In Los Angeles County, all firefighters have received basic medical emergency training, including cardiopulmonary resuscitation. Some injuries and medical conditions are beyond them, though, and the minutes before a paramedic unit arrives can mean life or death. The county is filling the gap by equipping fire engines with a new machine called a semiautomatic defibrillator. About the size of a laptop computer, the unit reads the patient's heart rhythm through electrodes attached by the firefighters. It analyzes the pattern to check for certain kinds of arrhythmia, charges itself and applies the proper voltage of electric shock. The county estimates that the machine has saved the lives of 25 percent of all the people it has been hooked to.

With fire prevention, equipment and rescue tactics better than ever, many more people are being saved today than two decades ago. But seasoned firefighters, who know that nothing can ever make their world safe, warn rookies against placing too much faith in their high-tech gear. The fire equipment is so good, they say, that complacency can set in.

I know what they're talking about. While taking part in a Los Angeles County training exercise on how to deal with a pool of burning gasoline, I had used up my extinguisher and turned to walk away. Al Harris, a safety supervisor from a Texaco refinery, grabbed me by the shoulder. "Don't ever turn your back on it," Harris told me. "Fire is your enemy. Don't ever let it get behind you." Like some ancient king, quick to take offense, fire will be ready with a harsh penalty for those who—even for a moment—forget where the real power lies.

In an actual rescue of a cliffside-fall victim in L.A., fire department helicopter lowers paramedic to beach.

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By Rudolph Chelminski

A French chef's long, hard ascent to a third star

Bernard Loiseau's fervent pursuit of the top Michelin accolade drove him to tears, but then, with a style of his own, voilà!

The white cloud is bothering Bernard the Bird. A lot. Something of a white cloud himself in his immaculate chef's tunic and apron, he marches double-time from salon to dining room to powder room to bar, trailing his maître d'hôtel and a local mason in his wake, gesticulating and remonstrating as he goes, passionately emotional about the color tone the red Burgundy tiles underfoot have taken.

"Look at this!" he cries, sweeping an arm over a corner of the luxurious, octagonal dining room with the gorgeous view out over the garden. "White, it's gone white! It's got this . . ." His quick brown eyes suddenly spot an infinitesimal speck of dust on the floor, and he swoops down to remove its offensive presence from his view. ". . . this *nuage blanc* over the red. I can't stand that! It's got to be fixed."

The mason thoughtfully runs his hands over the lovely old tiles (they look fine to me, but Bernard, adamantly perfectionist, remains intractable) and says learned things about porosity and lime leaching out and maybe an earlier silicone treatment. Bernard contains his impatience for a few moments, then abruptly brings the discussion to a close with a single lapidary command whose import everyone in France would immediately recognize:

Brandishing sea scallop and monster truffle (.44 pounds, $125), Bernard shows off savory dish uniting them.

"Well, my poor monsieur, you've just got to make me a three-star floor."

That says it all. No need for more explanation.

If the Catholic Church exalts excellence by beatification and maybe canonization, the Swedes and Norwegians with Nobel Prizes, and the White House with Presidential Medals of Freedom (Saint Sinatra), for the French the supreme symbol of culinary perfectibility is the three-star rating given to restaurants by the Michelin Red Guide (SMITHSONIAN, June 1986). More than presidents (whom they laugh at), more than the police (assumed to be half-crooked) and more than religious leaders (now employed as vague accompanists to the rituals of getting born, marrying and dying), France trusts the Michelin to discover The Truth and announce it *urbi et orbi* in March, when the new guide appears each year. So high are Michelin's standards and so rigorous its demands that of France's 130,000 restaurants, only 19 merited Michelin's supreme culinary accolade—three stars ("cooking worth a special journey")—in the 1991 edition, and of all the rest in Europe, only 12. Now that is something a Frenchman can have faith in.

Faith he has, and unswerving, backed by three-stardom criteria as ticked off by Bernard Naegellen, responsible for the Michelin Red Guide. "First and foremost, a three-star establishment must have the very top quality on the plate, prepared with the greatest finesse. The wine cellar must be first-rate, and everything must be served with competence in an atmosphere of good taste and quality." (Corrupting the system, restaurant guides in the United States award a variety of symbols—toques, diamonds, forks—and in varying numbers, up to five, to delineate degrees of excellence.)

The rarefied world of grande cuisine

A year ago last March, Bernard Loiseau (translated, "Bernard the Bird") joined Michelin's list of culinary immortals when his restaurant, La Côte d'Or, located in the Burgundy farm town of Saulieu, 150 miles southeast of Paris, was promoted from two stars to three. The distinction says a lot about Michelin and Bernard himself, of course, but even more about the curious, rarefied and entirely admirable world of grande cuisine, the single branch of human enterprise where the French may still be regarded as the absolute masters of the art, the ones whom all the others copy.

Bernard's ascension to wealth and fame—which are exactly what three stars in Michelin's Red Guide bring—is like a folktale because he began so low to rise so high. Unlike many of the great names of haute cuisine today—Bocuse, Troisgros, Guérard, whom gourmets revere the way Spaniards do bullfighters or American kids basketball players—he did not in-

Photographs by Pierre Boulat

Exultant proprietor, outside his Hôtel de la Côte d'Or, signals his reason for joy: he caught that last star.

herit his restaurant from his parents and, unlike most younger chefs, did not even attend a cooking or hotel management school, but slogged his way upward via the ancient, Dickensian route of direct apprenticeship.

He was lucky, though: he was apprenticed at the right place, and the timing was so perfect as to be almost unconscionable, since he instantly encountered a Shakespearean omen pointing like a red neon arrow straight to his life's mission while he was still a mere stripling. He followed that ambition with such single-minded devotion that nothing—neither the jaded old pros who were certain he would fail, nor the twitteringly nervous bankers who saw him overextended on vast loans, nor, ultimately, Fortress Michelin itself—could stand in the way of his destiny.

"Destiny": it seems like rather a grandiose word to use in regard to a cook and a restaurant, but when you have the good fortune to go to Saulieu and enter paradise through Bernard's front door, to stroll through half a museum's worth of polished oak, wrought iron, antique furniture, suave marble, shimmering brass and ancient tile (beclouded or not), to seat yourself before a redundance of linen, silver and crystal, and then begin consulting about the meaning of life with, say, a 1985 Puligny-Montrachet, perspectives change. Big words don't appear to be so out of place, after all. And certainly not when you can measure how far the perpetrator of it all has come.

When I first met Bernard, in 1973, he was a skinny, gregarious and boundlessly ingenuous kid of 22, doing the cooking for a little *bistrot* near the Opéra in Paris. He was then in the employ of an entrepreneur named Claude Verger—a talent-spotter if ever there was one—who was teaching the lad about the kind of cooking he preferred: light, fresh, last-minute, understated and generally underdone, too. To be hired by Verger was Bernard's second great stroke of professional luck. His first had come in the Troisgros brothers' fine kitchen.

The Troisgros restaurant, in the manufacturing city of Roanne in central France, is now firmly ensconced as one of the finest of the Michelin three-star establishments, but when Bernard dropped out of school to begin his apprenticeship there, it was a good deal more modest, two-star operation under the debonair guidance of the Troisgros brothers, Pierre and Jean. No sooner had Bernard begun peeling potatoes and turning carrots than the omen appeared, wham!

"Two weeks after I arrived there, Pierre and Jean popped champagne for everyone in the kitchen," Bernard remembers. "March 15, 1968—they had just won their third Michelin star. I was too young and too dumb to know what it was all about—I was only 17—but I said to myself, *Tiens!* this is the job for me. Someday I'm going to be like them. Since then, that's all I ever thought about."

Today, 24 years later, Bernard is rather less skinny. Half of his hair has deserted him, but he is as gregarious and ingenuous as ever, readily admitting that he is that rarest of species, a truly fulfilled and happy man. Not that he is taking anything for granted, mind you. Now that he has clasped the three coveted stars to his bosom, he is frantically determined that no mote of dust, no overcooked duckling and no *nuage blanc* is going to take one of them away. It is a lesson he never tires of impressing on his 60-strong staff, whom he endlessly

The author, who lives the good life near Paris, gave up BLTs and chili a few years ago in favor of frogs, snails and kidneys, and seems to be surviving just fine.

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If Michelin is the benevolent despot who keeps them honest, the French, in truth, rarely need prodding from anyone to excel in the preparation, presentation, consumption and promotion of fine food. They tend to be uncompromisingly proprietary about eating, and that's that. When, back in the '60s, Charles de Gaulle forbade an American company to build a plant in France for the manufacture of, *mon Dieu*, ketchup, he was being bloody-minded as only De Gaulle could be, but he was also following directly in the path of the legendary Fernand Point, restaurateur of the '30s, '40s and '50s who was spiritual father to a whole generation of today's kitchen gods. Point gave his waiters standing instructions to deliver the bill to anyone who started smoking before the end of the meal, and created a memorable precedent when he physically threw out a couple of luckless Americans who tried to order Coke with their lunch. Today, Paul Bocuse, the ne plus ultra of French cuisine, still insists, when he has nothing more to gain or prove, on doing his own marketing and personally selecting the flesh, fish, fowl, fruit and veggies he will be serving on the day's menu.

Components of an acclaimed breakfast are spread before portrait of culinary great Alexandre Dumaine.

The young Bernard Loiseau followed in that same tradition when he arrived in Saulieu in 1975—the walls of his bachelor's bedroom were adorned with posters of the Troisgros brothers and Bocuse instead of girlie foldouts—but the material he had to work with was woefully deficient. Verger, his mentor, had bought La Côte d'Or as a kind of historical duty, a genuflection toward Alexandre Dumaine, the great chef who had made it an international institution in the '50s. If he didn't act, Verger was sure some criminal would come along, pick up the grand old barn for a song and turn it into a supermarket. Unluckily for Bernard, La Côte d'Or had fallen on long years of neglect since Dumaine's retirement, and the new superhighway south bypassed Saulieu altogether, turning what had been a major transit point into a touristic ghost town.

Installed by Verger as the captain of an ocean liner without passengers, Bernard hustled, exhorted and badgered from within Dumaine's ancient, dilapidated kitchen. The clientele remained desperately thin. "I used to work like a dog all day long, then go up to my room and cry half the night," he admits, recalling with a shudder those early days of frustration and despair.

A rickety kitchen becomes a point of pride

Papa Michelin was watching him, though: in 1977 he won his first star, and in 1981 his second. Shimmering tantalizingly in the distance was the third. Bernard took the plunge, bought the place from Verger and began borrowing until he was more than $5 million in hock. Year after year he enlarged, redecorated, added staff, planned ahead, eyeballed neighboring properties and flung his youthful creations at the intrepid gastronauts who left the more common orbits to venture to the outer space that was Saulieu. Only on his own work space did he economize. Growing progressively more rickety with the years—holes in the ceiling, wheezing equipment, a pastry room that looked like the Black Hole of Calcutta—his kitchen evolved from a professional curiosity into a positive point of pride. "I got my third star with the rottenest kitchen in France!" he exults.

It took a while, though—ten years. Every time I saw him during that period he asked the same question, with that odd combination of enthusiasm and anxiety that has always characterized him. "You think I'm going to get them, *hein*, those stars? Don't you? *Hein?*"

He would ask everyone the same question, of course. I'm sure that among those he asked were members of Michelin's famous corps of anonymous inspectors, pos-

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ing as girdle architects or itinerant arbitrage negotiators. As the debts and trepidations piled up during that long decade, Bernard found time to get married twice, first badly and then blissfully. His second wife, Dominique, was obviously custom-designed by some celestial genetic engineer to be a chef's wife. She is sweet and kind and good, in addition to being a university-trained dietician with a second degree in cooking. She is also a journalist. Nobody's perfect.

Most important during those ten years, Bernard developed a style. Cagily observing the contemporary cooking scene, he concluded that a chef who aspired to the top of the trade needed a distinguishing mark to set himself off from his peers. Bocuse, Troisgros and Haeberlin had done it with something that became known as *nouvelle cuisine* (they've been fleeing the label ever since); Alain Senderens made his mark with red wine sauce on fish; and Michel Guérard lured customers down to the middle of nowhere (Eugénie-les-Bains) with his inspired gimmick of *cuisine minceur*, or cooking for the figure-conscious. Bernard thought long and hard and came up with what has been popularly baptized as *cuisine à l'eau*: water cooking.

He hates the label, but it has stuck. He prefers to call it cuisine of essences. His approach is based on the proposition that butter, cream and the usual stocks, the consecrated flavor bombs traditional to French cuisine, are bad for the health in the first place and anomalous for these cholesterol-obsessed days, anyway.

A balancing act on the high, high wire

What Bernard evolved during the ten-year wait for his third star was a daring, inventive and utterly personal approach to cooking, one that teeters skillfully on a sublime high wire over the chasm of the ridiculous, eschewing egg yolks or flour for thickening, banning cream and refusing even the elementary trick of deglazing a pan with wine or liquor. Some call it Maoist cooking for its extremist austerity; others see his extensive use of Teflon pots and pans (ideal for minimizing cooking oils) as a pure space-age approach. Whatever the tag, though, the point is this: his cooking is different. In many ways, in fact, it is unique.

Bernard learned to concentrate flavors by deglazing cooking pans with lemon juice or vinegar, infusing herbs in water, thickening red wine sauces with a puree of carrots, and white wine sauces with pureed onions. Gleefully reorchestrating the classics of French cuisine, he thumbed his nose at tradition by serving escargots de Bourgogne (snails) with a sauce of nettles instead of the sanctified parsley, garlic and butter of scripture; while his frog's legs lay on a virginal white bed of garlic puree that had been constructed of fresh garlic cloves simmered for half an hour—their water changed three

Construction spree added an octagonal dining room (roof, far left) and banquet hall; Bernard and Dominique look out from hall's balcony. In background is the original Côte d'Or; its dining room now serves breakfast.

Guests dine in luxurious new room, with its elegant decor and golden light. The restaurant is in Burgundy, one of France's greatest wine-producing areas; here, selection of Burgundy's best awaits sommelier's ministrations.

times to eliminate their flamethrower punch—and then blended with milk to the consistency of mashed potatoes. Potatoes? For $70 or so, he offered an "all potato" menu that was more play on words than strict reality, with the lowly tuber dancing a gastronomic tango through several courses involving asparagus tips, onions, parsley, truffles, gravy, local cheeses, apple sherbet and baked apples. A true culinary curiosity, this *Pommes en Fête* menu has proven to be one of his most popular.

Experimenting with the tricks and alchemy that now define his distinctive style, Bernard tried out his ideas on family, friends and professional colleagues. Sometimes they worked and sometimes they flopped. Whatever the verdict, he continued to be pursued by the *cuisine à l'eau* label. It was the price he had to pay for his inventiveness. Paul Bocuse came up with the definitive wisecrack when he and a few confreres were strolling on the banks of the River Saône. "*Tiens*, what a pity," said Paul. "If only Bernard could see all that sauce going to waste."

Japes aside, Bernard's surprising cuisine rapidly gained converts. One after the other, ample-tummied gastronomic journalists—a powerful and cosseted order in France—trekked down to Saulieu, ate, reflected and, for the most part, erupted into dithyrambic burblings. President Mitterrand, never one to turn his back on the good things of life, transported his august person to a discreet corner of the dining room, as did former president Giscard d'Estaing and, indeed, most other prominent politicians. One is not French for nothing. The firepower of their praise was reflected in the steady rise of Bernard's standing in the "other" annual restaurant guides. Presently the surest sign of all came along to prove his international notoriety: the Japanese. The scenario was perfect, except for what Bernard cherished most fervently, the nod from Big Red—that blasted third star.

A son, an honor and a star

Everything came together in 1991. Bernard attained the reputed sagacity of the 40-year-old; Dominique gave him his first son; his wine steward, Lionel Leconte, was named best young sommelier of the year; and, on March 4, just after Bernard had completed the most ambitious and costly of his renovations, Michelin finally coughed up the third star. Not a moment too soon: with some $45,000 per month to pay back to the banks, Bernard had begun to seriously wonder if he could make it through the next fiscal year.

"An explosion," says maître d'hôtel Hubert Couilloud, shaking his head in wonderment at the renowned Michelin effect. "The fax and the phone were jammed all day long, and the telegrams came in from

Bernard sauces his snails with wild nettles, rather than drowning them in the customary butter and garlic.

For a pungent sauce base, simply reduce ten bottles of Burgundy to one, then thicken with puree of carrot.

everywhere in the world. That same day—and after—trucks kept arriving with complimentary cases of wine. Since then, business has gone up 50 percent."

Bernard's future seems assured now. The clientele that habitually eats in three-star places does not think twice about laying out the $125 that the top menu costs them (wine not included), and finds his luxury rooms at $275 a night a positive bargain. (His simpler rooms, left over from the Dumaine days, really *are* cheap at $50, but they are balanced by three duplex apartments at $330.) The Japanese Tourist Board is financing a Bernard Loiseau annex in Kobe, while the French bankers are falling all over themselves to thrust money at him. Bernard has already obliged them by buying up a contiguous property, which he plans to turn into a rustic restaurant, to be named Le Bistrot du Morvan, serving simpler regional specialties at cheaper prices than for the culinary acrobatics going on next door. (This twinning system has become something of a movement in French gastronomy. Top chefs like to show that they can turn out ready-to-eat as well as haute cuisine.)

Bernard now works in a vast, modern, air-conditioned kitchen, surrounded by 20 white-aproned chefs, sous-chefs and *commis* (assistants) who uncomplainingly begin their workday at 8 A.M. and usually remain until midnight or beyond. Jobs in a three-star kitchen are cherished calling cards that can propel a young chef toward future success. Bernard has to turn down 3,000 applicants a year, many offering to work for free. "I'm going to blow them away when I get back to the States," says one of the lucky ones, a New Yorker named David McInerney. "They don't have any idea of the hours and the work we put in."

"The restaurant trade in France isn't too strict about hours," shrugs Patrick Bertron, Bernard's 30-year-old second chef, as he Teflon-fries (two minutes exactly, one side only) a filet of red mullet in virgin olive oil. "As long as there's work to be done, we stay here. That's just the way it is. If you want three stars . . ."

Bertron pats cooking oil off the finished fish with a piece of paper towel, slips the filet onto a toasty-hot plate, uncooked side down (the heat of the plate will finish the cooking) and passes it to his left, where another cook adds a garnish of steamed zucchini flower and sauces the fish with a puree of sea urchins. Just as a white-jacketed waiter is bearing the offering away to the dining room, Bernard bursts in, agitated. In an adjacent salon he has been consulting with a television producer about a country-style banquet for 25, and now something is wrong.

"We've got a problem," he announces. "We've got to leave the walnut oil out of the oxtail salad. It's too strong. Kills the taste. And we've got to add carrots, and more onions—sliced, not chopped, *hein?*" Bertron

nods, and Bernard dashes back out. Just before he hits the door he throws back over his shoulder, "And put in more parsley, too."

Later, as Bernard sits down with me to sample a few of his recent ideas (the red mullet with sea urchin sauce, scallops with endives and truffle juice, pike with shallots and a brilliant Côtes-du-Rhône red wine sauce, chicken breasts with baby leeks and foie gras), I am struck by two observations. First, there is no salt or pepper on the table—clearly, Bernard considers that the food is perfect as presented, and any alteration one way or another would diminish it. And second, Bernard watches every mouthful I take in, with disconcerting intensity. That searching gaze is typical of all great chefs. They are proud of what they have created, but they continually need reassurance: Do you like it? In their kitchens they watch the plates come back and know exactly which guests have left what element uneaten. *Mon Dieu*, table 12 didn't eat his green beans. What's wrong?

"What's wrong? Tell me what's wrong," Bernard pleads, but I am hard-pressed to find a criticism. Maybe, I suggest, he might think of salting his dishes a little less strongly, and he nods with sincere contrition. "Yes, yes, Dominique warns me about that all the time," he says. "That's a problem with me. I like to go right to the edge. So what else is wrong?" I cast about for something else negative to say, but the only thing I can think of is that there had been no soap dish on the wall of my room's shower.

"Oh, my God," says Bernard, aghast. "No soap dish! That's just the sort of thing a guest hates." He leaps up and hurries to the front desk to order an emergency purchasing program.

I am certain that the new soap dish will be in place within two hours at most, but I won't have occasion to check up on him, since I am on my way out of Saulieu after lunch. Bernard sees me to the door, apologizing again for the soap dish and promising to watch it with the salt. He manages to look enthusiastic, happy and worried all at the same time. And he has a question for me. "With the recession, things are a little slow now, aren't they? But *les Américains* are going to come to Saulieu, aren't they? *Hein?*"

With their protégé, in the kitchen of the restaurant Troisgros in Roanne, jubilant friends Pierre Troisgros (at right) and Claude Verger (center) lift celebratory glasses of champagne to Bernard's ascent to Elysium.

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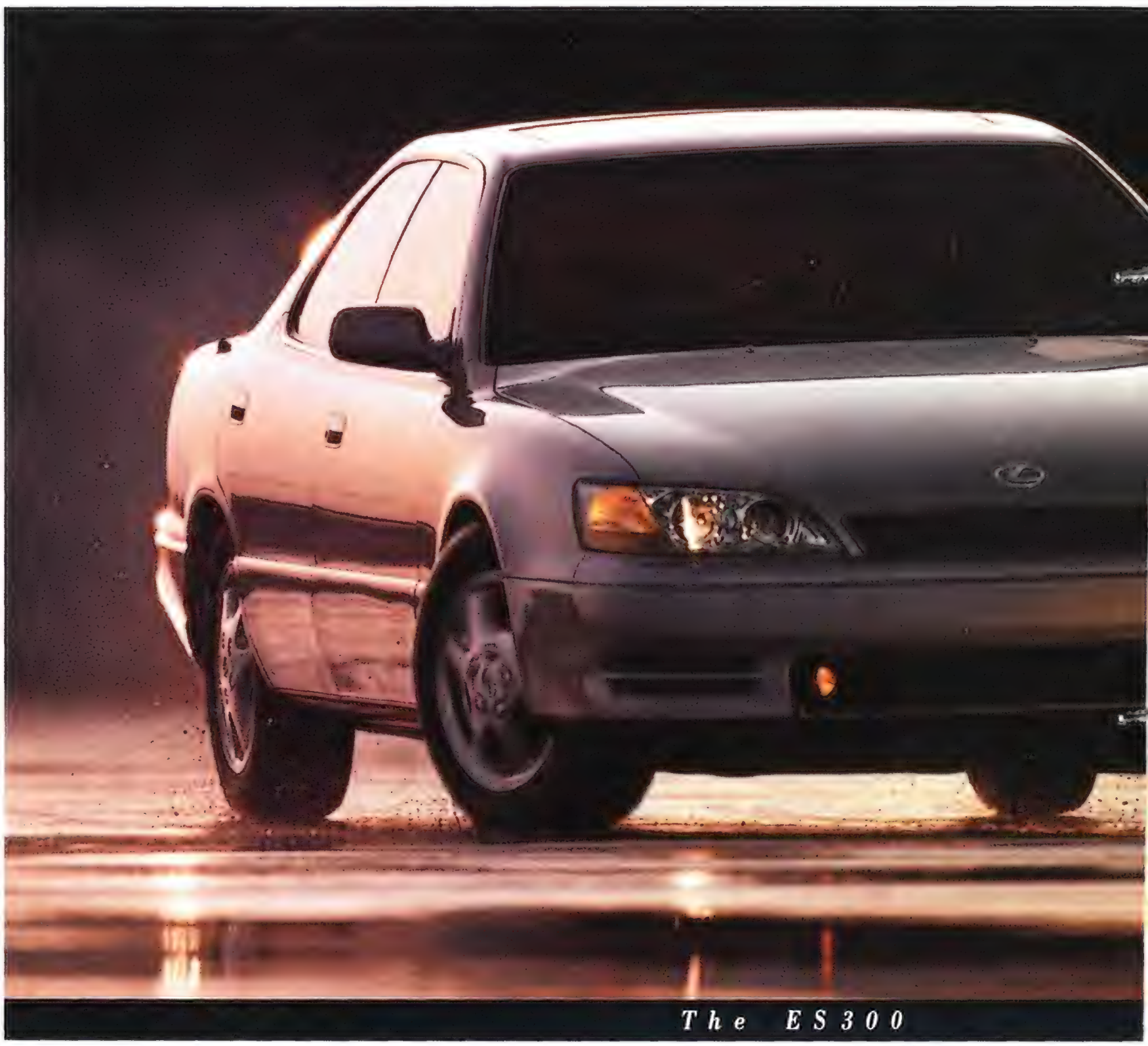

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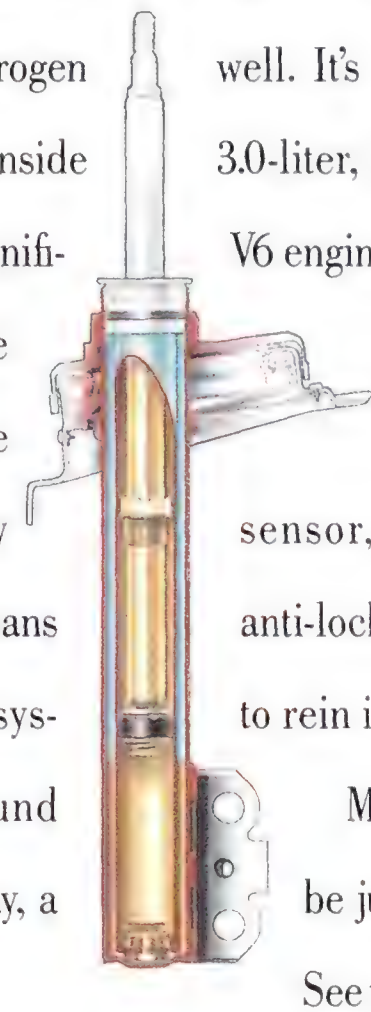

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The Relentless Pursuit Of Perfection.

By Bil Gilbert

Some not-too-close encounters with a cactus that walks

'You can whack one and get a meal'—or, considering the consequences of an unwise move, you can just let porcupines alone

In the month of May, on the occasion of my 50th birthday, my daughter Lyn flew across the country so that together we could do something we had talked about for some time—canoe the length of the West Branch of the Susquehanna River, which runs 200 miles through the sparsely populated highlands of central Pennsylvania. When we did it, the weather and water levels were splendid every day. The flora was in profuse bud, the fauna abundant and active. Each afternoon we came serendipitously upon a PCP, a Perfect Camping Place.

At night I spread my sleeping bag in the open, but Lyn slept in the tent because she thought it would somewhat muffle the woods sounds. As a matter of record, she is a bold and adventuresome woman, but nearly everybody has something in the Great Outdoors line that makes them jittery. My phobia is chiggers. Lyn's is night noises, which, she says, make her think about very large bears, and worse.

One evening, something began rattling the pans. Getting up with a flashlight, I found a large porcupine snuffling at a skillet. I called Lyn several times. Getting no response, I tapped on the tent. She emerged and, to facilitate conversation, removed the wads of toilet tissue she had stuffed in her ears. With one of those laugh-and-you-die looks daughters use on fathers, she explained, "I don't worry about what I can't hear."

We then walked over to look at the porcupine. He gnashed his teeth in a moderately ferocious way, shook himself so as to rattle his fine set of quills and lashed his tail a time or two. Having let us know who he was, he went back to worrying the skillet. After 15 minutes or so, he had apparently extracted all the salt from it and waddled back into the woods.

It is the toilet-tissue earplugs that have made this a semi-legend in our family and among Lyn's friends. But I also remember the incident clearly because it nicely demonstrates what seems to me to be the most striking personality trait of porcupines—insouciance—and why they have it. The main thing about these animals is the most obvious—quills, the possession of which is critical with regard to their general behavior, relations with other creatures and survival.

Other species, skunks and rattlesnakes being notable examples, have specialized defensive equipment, which they do not often have to use because they also have developed specialized means of identifying themselves as bad dudes. But porcupines are perhaps the most able when it comes to this sort of deterrent advertising. Beyond tooth gnashing, quill rattling and tail lashing, their two-tone coloration is distinctive, and in extremis they emit an unpleasant odor. There is something a bit panicky in the warning behavior of skunks and rattlers, as if they are not certain that their signals will be received and understood. Porcupines give the impression of having no such doubts, the one on the West Branch being typical. After making themselves known, they tend nonchalantly to go on about their business.

A lashing tail and 30,000 quills

The confidence porcupines have in their defensive armament is justified. As an adult, each one is covered on its topside, excepting the muzzle area, with upwards of 30,000 quills, which in fact are specialized hairs, comparable in hardness and flexibility to slivers of celluloid. They are so sharply pointed that they will penetrate any hide. They appear smooth, but just below the tip they are set with tiny, scalelike barbs. The porcupine has muscular control over these spines and when threatened, raises them, transforming itself into the zoological equivalent of a cholla cactus. The quills are loosely set in the skin, so that if they are touched with any force they will pull out of the porcupine and stick into the toucher. The longest quills, up to four inches or so, are on the back and flanks of the animal. Those that often do the most damage are the shorter ones, which stud the muscular tail. With a few well-timed lashes, a porcupine can drive so many quills so quickly into an attacker as to have given rise to the erroneous notion that it can throw the spines like darts.

After it penetrates the skin of another creature, a porcupine quill works inward because of its barbs and the involuntary muscular action of the victim. In his book *The North American Porcupine,* Uldis Roze

Oops! Surprised porcupine takes defensive posture, with its upraised spines sending a clear message: keep away. Specialized hairs look harmless enough, but each is armed, just below tip, with tiny, scalelike barbs.

Ends of deeply embedded quills protrude from the nose of a Canadian sled dog after encounter with a porky.

Porcupine brandishes quills while keeping its eye on an interloper. Tail can drive home a snootful of spines.

gives a graphic description of this. Having climbed a tree to better observe a porcupine, Roze got too close and received a smart tail slap. Most of the quills were caught in his clothing, but returning to the ground, he found that one had been driven into, and had disappeared beneath, the skin on the underside of his upper arm. Thereafter he felt it—and watched it, by signs on the skin surface—as it traveled down his arm and through his elbow toward his hand. It emerged, harmlessly and completely, from his forearm 48 hours after it had entered his upper arm.

Caution: these weapons can kill

Quills do not always work out so neatly. There is at least one case of a man dying because a porcupine spine entered his abdominal cavity. There are also a number of reports of other creatures succumbing, either directly, because quills pierced vital organs, or indirectly, because the victims were so handicapped that they could not forage in normal fashion.

In my own experience and that of many others, trying to remove porcupine quills from the muzzle of a foolish dog is exceedingly unpleasant and can be dangerous. Because of the agony involved, even the most sweet-tempered dog will thrash convulsively and is very likely to bite. Tranquilizing the dog makes the process a great deal safer and more humane. Once the animal is drugged or restrained, the quill has to be grasped firmly, as close to the point of entry as possible, and yanked out carefully so the tip does not break off and remain in the victim. One of the most persistent—and mistaken—notions about quills is that they are filled with air, and that if the free end of a quill is cut off it will deflate, allowing easy, almost painless, extraction. In fact, quills are filled with a spongy material. Cutting off the end makes the quill harder to grasp and runs the risk of splintering it.

Basically, a porcupine uses passive defense; that is, something runs into it and is punished. In some situations, however, some porcupines seem to manage their quills deliberately and rather benignly. Richard Earle, a wildlife research biologist with the Michigan Department of Natural Resources, did porcupine research in that state's Upper Peninsula when he was a graduate student. During his study he reared an infant male porcupine, whom he called Tubby, along with a female named Spike. Tubby frequently engaged in an odd activity that Earle thinks can only be described as playful. He would spin about rapidly and then slap his tail against Earle's leg. He never caused any injury because he carefully turned so as to lay only the quillless underside on Earle's leg. Others who have raised porcupines have had similar experiences, which suggests that captive animals, at least, have some aware-

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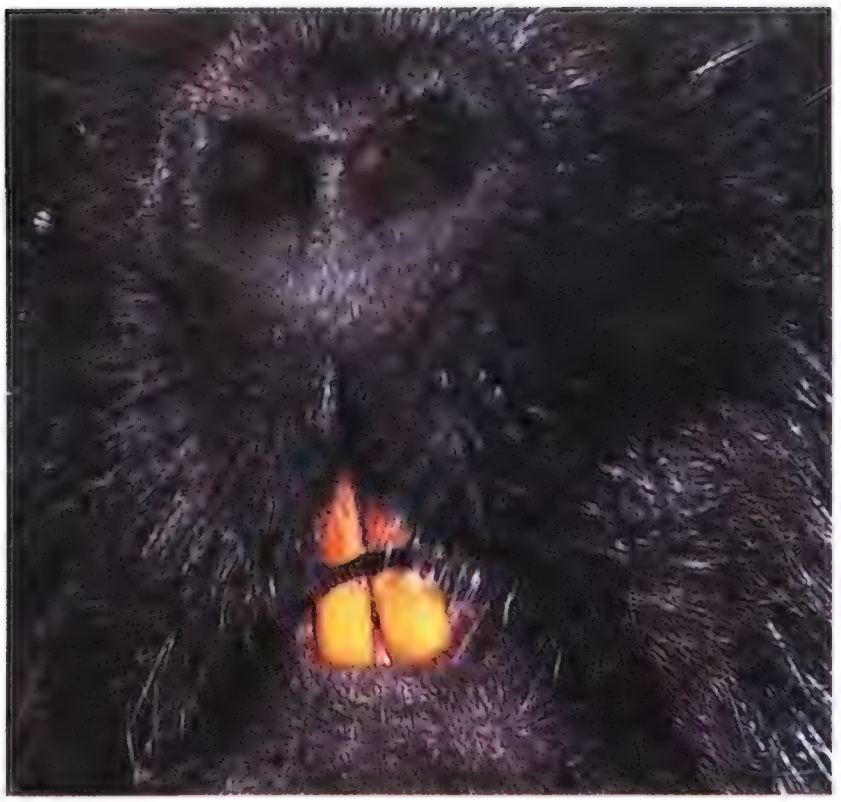
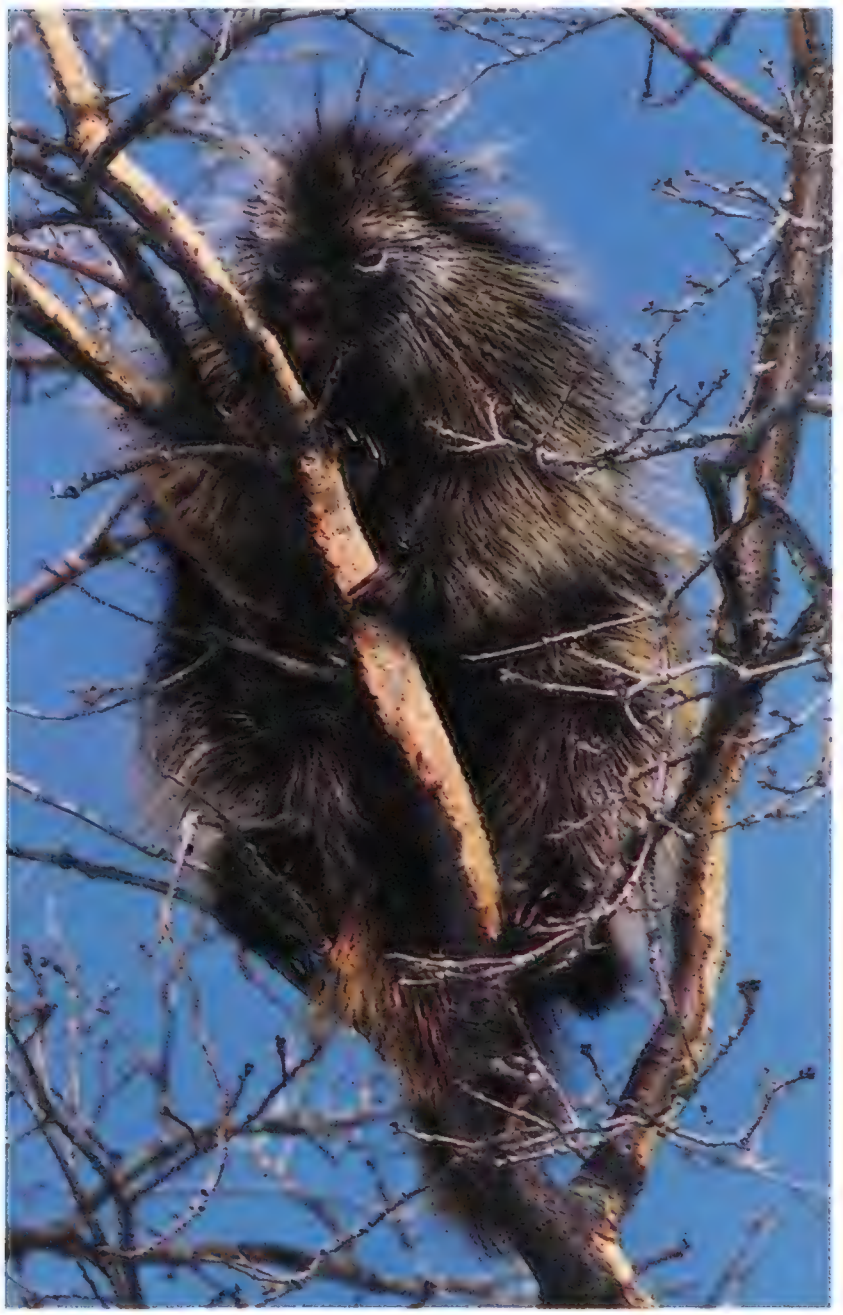


Formidable incisors are used for stripping bark and clipping off foliage. The porky's diet is mainly vegetarian.



A familiar sight in snow country, a porcupine clings to the branch of a tree while feeding on bark and buds.

ness of what damage their quills can do and will adjust their actions accordingly.

Beyond prickliness, porcupines are very modestly endowed. They are stout-bodied—large males sometimes weigh 25 pounds—and have short legs. Consequently they are extremely slow-footed. They spend much of their time in trees but, although strong, are not agile climbers. They can swim well enough but, again, slowly. They are not prolific breeders and have fairly special habitat requirements, being restricted to dense, coolish forests. Unlike such comparably sized rodents as beavers and woodchucks, porcupines have shown little capacity for adapting quickly to the modification of their habitat by Man. Nevertheless, the species does have a long evolutionary history. Porcupines have proven themselves to be exceptionally hardy pioneers who now occupy portions of all the continents except Australia and Antarctica.

As presently classified, porcupines are divided into two families, those of the Old World and those of the New. There are 20 species in the former group, 23 in the latter. Whether they have a common African ancestor or have evolved independently is a matter of taxonomic dispute. Some raise the question of how such creatures got themselves from Africa to South America. Those who favor the common-ancestor theory suggest that they crossed the Atlantic on rafts of driftwood or other vegetation. Whatever their very ancient history, Old World porcupines are now ground-dwelling, foraging and digging rodents inhabiting parts of Africa, Asia and Europe. Their New World counterparts are much more arboreal—almost exclusively so, in the case of some South American species.

About three million years ago, after the formation of the Isthmus of Panama, some New World porcupines began moving north. They eventually migrated farther in this direction than any other continental mammals of truly tropical origin. North American porcupines, a single species, presently reside in forested areas from the Mexican border to northern Alaska.

They're prickly but not picky

Porcupines do not hibernate, but, being short-legged residents of the snow country, they do little winter traveling. They may wait out the worst weather in a hollow tree or rocky crevice, but every day or so they climb a nearby tree to feed on buds, twigs and the inner bark, whether the tree is deciduous or coniferous. During the spring and summer, porcupines spend considerable time foraging on the ground. They will browse on, among many other things, apples, alfalfa, cinquefoils, dandelions, knotweeds, lupines, raspberry and rose shoots, purslanes, various grasses and sedges.

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Caught in the act: porky perched on firewood has gnawed ax handle that apparently contains some salt.

known and often aggravating traits of porcupines is their ravenous appetite for salt. The substance is essential for all mammals, since muscular and nervous reactions depend on a balanced intercellular exchange of potassium and sodium. Generally, the normal diet of carnivores provides sufficient salt, but that of many herbivores does not. This is especially the case with porcupines living inland, where tree parts contain little sodium. Therefore, in addition to natural salt licks, the animals search for fresh bones of kills made by predators; yellow pond lilies; the tough, non-nutritional, outer bark of certain trees; and other items with naturally high concentrations of sodium.

In modern times, humans—who use, exude and impregnate their possessions with salt—have greatly enriched the habitat of many porcupines. If left unguarded in their range, boots, gloves, pants, shirts and tools that have been only moderately sweated on or in will usually be found and chewed. The same is true of anything that has been treated with certain paints that are somewhat saline. Most plywoods are particularly attractive because the adhesives used in their manufacture are salty. Once I came across an aluminum canoe that had been cached by a would-be fisherman in an alder thicket along the shore of a Michigan lake. Porcupines had not only gnawed off the paddle handles but chewed holes in the metal seats and thwarts.

During the winter several porcupines share a commodious den site—a crevice under a rock ledge, for example—but otherwise they are solitary, each animal working a grove of trees alone, seldom straying far from it. In the warmer months, as they forage about on the ground, porcupines encounter and interact with one another more often. Robert Brander, now an ecologist with the National Park Service, has done considerable field research with the species in both the Great Lakes and New England states. Frequently in the middle to late summer he has come across gatherings of as many as 10 or 12 porcupines. These usually occur in open, cleared places, particularly the sites of abandoned logging mills or camps. Such clearings are good new-growth foraging areas and often salt sources, but Brander thinks there may also be social reasons for the assemblies. Having observed them while they perched in trees, he says that the most striking feature of porcupine conventions is how raucous they are. The animals mew, purr, chatter, snuffle, grunt and growl. Also they gnaw, not, it appears, to get food but to make noise. Brander speculates that these summer congregations may give the participants a sense of the number and status of their neighbors, which is useful information to have just before the breeding season in September.

Questions about how porcupines "do it," to put the matter politely, have long intrigued pop naturalists and inspired many folktales. Commencing in the 1940s, Albert Shadle and co-researchers at the University of Buffalo addressed themselves to this matter in a clinical way. Shadle found—and his observations have since been verified by others—that there is nothing remarkable about how porcupines mate, but how they get ready is somewhat bizarre.

As the hormonal tides rise in early fall there are confrontational displays, sometimes even fighting, among males. A male who has proved his mettle will cautiously approach a female. If receptive, she allows him to spray her with gouts of urine. When properly soaked, the female will elevate her hindquarters and move her quilled tail to the side, allowing the male to copulate with her, safely. In this fashion a dominant male may mate with several partners each fall.

When mom's away, baby won't play

Porcupines have a 210-day gestation period, one of the longest among mammals, and invariably produce only one offspring at a time. The newborn infant weighs a pound or more, is sighted and mobile, but is unable to forage for some time, being too small and weak to do much climbing. Therefore it is nursed for three months or more. Even so, the female spends relatively little time with her kit. During the daylight she will leave her baby in a secure cranny and go off to sleep some distance from it. So stashed, a young porcupine will remain silent and motionless even when closely approached. In the evening the kit is retrieved by the mother and tags along on her foraging rounds.

Among mammals, it is commonly immature males who, after they can fend for themselves, leave natal territories and take up residence elsewhere. With por-

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Porcupine found in South and Central America has a more prominent nose than its North American cousin.

African crested porcupine forages for food on ground. Because it doesn't climb, it's prey for lions and tigers.

cupines it is otherwise, young females being the ones who disperse in late summer or early fall. Once having found a home range they will, barring catastrophe, remain there for life and pugnaciously defend the area against other females. Males are much less territorial, several of them often wandering about in the same area, sharing it amicably except in the breeding season. This unusual dispersal behavior may have developed because the females, who for 80 percent of their adult lives are either gravid or lactating, have a need for permanent home bases.

Porcupines are not always entirely secure. Walter Taylor, one of the first biologists to study them extensively in the Western United States, found that in addition to complements of internal-external parasites, porcupines are occasionally preyed upon by all of the larger carnivores: bears, mountain lions, wolves, coyotes, badgers and wolverines. But because of the painful consequences, these attacks are rare. They are commonly made by desperate, handicapped or starving animals and, Taylor thought, have little effect on overall porcupine populations.

Among the North American fauna there is, however, one more or less professional porcupine killer. This is the fisher, or pekan, a strong, lithe, ten-pound member of the weasel family. Being agile climbers, fishers can and do go anyplace a porcupine can but much more swiftly. Curled in a tight den hollow or cave, with spines upraised, porcupines are fairly invulnerable. But in the open, a fisher will slash a porcupine's unprotected face until it overturns the weakened, confused animal, and then it eviscerates and feeds on belly parts from the quill-less underside.

People are the only other regular and significant predators on porcupines, anyone with a stout stick being able to catch and dispatch them with impunity. Paradoxically, their defenselessness somewhat protected porcupines for a long time. In many Indian cultures they were well and solicitously regarded, often elevated to the stature of totem animals, because they provided emergency rations for travelers or hunters. This tradition from the hunter-gatherer days lingered on at least until the 1930s in Michigan, when I was growing up there. I spent much time with my grandfather, who in his own youth had logged in the Big North Woods. When I knew him he was an exceedingly conspicuous consumer of wildlife, reflexively hooking or shooting most of the beasts he encountered. Porcupines were an exception because, as he several times explained, "if you get lost, even if you don't have a gun, you can whack one of them and get a meal."

We don't kill many porcupines for food these days, but a few are still being done in by ignorant campers, wilderness vandals and people who become enraged because an animal has chewed up their property or made a pincushion of their dog. Also, professional foresters, at least in times past, have traditionally despised porcupines. This reflected a mind-set once general among those who husbanded the flora and fauna for profit. It was commonly felt that any damages caused by wild beasts were outrageous, unnecessary and contrary to the intended order of things; that protecting good plants and animals from bad 'uns was morally, as well as economically, desirable. Thus farmers shot

Bil Gilbert wrote about coyotes in the March 1991 SMITHSONIAN. *He has also reported recently on badgers, lynx and Ruby the painting elephant.*

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Why the porcupine deserves a hand

Fisher, a porcupine killer par excellence, bares fangs. The agile weasel knows how to avoid porky's quills.

raptors as "chicken hawks"; game managers poisoned mountain lions because they ate deer; and silvaculturists bagged porcupines to save their forests.

In ecological perspective, North American porcupines and forests are clearly compatible, having flourished together long before there were timber managers. Even in immediate economic terms, recent studies have shown that porcupine damage to commercial forests is minimal—about 35 cents' worth per acre in the Adirondacks, for example, where the species is abundant. Occasionally porcupines kill trees by girdling them, but more often their browsing only prunes.

In the 1950s and '60s, when porcupine complaints were much more numerous and serious than they now are, a biological-control experiment was begun in several areas around the Great Lakes. It was based partly on the premise that one reason why porcupines were so numerous in certain places was that fishers had been extirpated, principally by trappers who, in good years, could get $100 or more for one of their pelts. Therefore, restoring fishers would do two good things: bring back a bona fide member of the native fauna and thin out porcupines. Accordingly, fishers were live-trapped in northern Minnesota and New York, and released in national forests in Michigan and Wisconsin. There they did well; and, as surveys conducted by Robert Brander, Richard Earle and others indicate, porcupine populations did indeed decline.

The Wisconsin Department of Natural Resources operates the Northern Wildlife Research Center in Rhinelander. Bill Creed, the recently retired chief biologist there, has monitored the fisher reintroduction program for nearly 20 years. He feels that these animals may be doing a bit too well, vis-à-vis porcupines. Creed estimates that there are presently about 6,000 fishers in northern Wisconsin. While he does not think porcupines are in danger of disappearing, they have become fairly scarce in certain parts of the region.

When fishers are favored

Fishers reproduce more than twice as rapidly as porcupines. It is now legal to trap them in Wisconsin. Largely due to low fur prices, the "harvest" has been small—300 pelts were taken last year—and insufficient, Creed thinks, to check the growth of the fisher population. Also, 40 Wisconsin fishers were trapped last year and shipped to Montana for release into the woodlands of that state. Similar programs are being conducted or contemplated in other areas, the stated purpose now being only to reestablish the fisher, not to control the porcupine.

Robert Brander, who is stationed at Apostle Island National Park in Lake Superior, feels such exercises should be pursued very cautiously and monitored more

carefully than is now the case. His reasoning is as follows: for millennia porcupines and fishers cohabited in Northern forests. Nobody knows exactly what the balance between them was or how they kept it. But Brander feels that currently this natural equilibrium may not be possible because of human-caused changes.

Mature porcupines, those 5 years old or more and in the 10-to-17-pound range, are much less vulnerable to fishers than are younger, smaller ones. Therefore, says Brander, to hold its own, a porcupine population must have appreciable numbers of these veterans, some of whom may live for more than ten years. A critical factor in their survival is the availability of secure den trees, where they are relatively impervious to predation. Elsewhere, suitable retreats may exist in rocky outcroppings, but in the Great Lakes region these sites are generally found in the hollows of large, old, often decadent trees. In commercially managed forests—which now provide most of the habitat for porcupines—such trees were systematically removed in years gone by because they had little economic worth and suppressed the growth of potentially valuable seedlings. Today, however, many commercial foresters are taking the opposite approach, encouraging the preservation of some of the older trees in order to provide denning sites.

In the woodlands of central Wisconsin, south of the area where fishers have been reestablished, porcupines are increasing, according to Bill Creed. Elsewhere in their historic range, the situation is similar to that in Wisconsin—local populations fluctuate, but the species is holding its own. Furthermore, beyond being an occasional nuisance, the activities of porcupines are not of great material significance to us. Nevertheless, nothing is forever, and Robert Brander makes a good point when he cautions that we should be self-conscious about our relations with these animals. Setting aside questions about their rights and our ethics, porcupines seem to me to be peculiarly rewarding because they so strongly provoke consideration of the marvels and mystery of nature. Theoretically all phenomena, from pismire to hinges, as Walt Whitman remarked, should do the same. But for better or worse, we are especially attracted to and moved by curiosities, seemingly odd pieces of work. Indisputably, porcupines are that.

On a balmy summer day in Montana, an adult porky shares wild rose leaves with a 2-month-old kit. Females have one offspring at a time. Youngster usually tags along with mother on her nocturnal foraging rounds.

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By Nathan Cobb

The show-and-tell tale(s) of the Great Explainer

With a barbed pen, David Macaulay—teacher, illustrator, writer, lover of 'dumb stuff like sewers'—slyly illuminates the everyday world

David Macaulay whistles while he works. He also grunts, mumbles, murmurs, stands up, sits down, shifts position, chews a thumbnail, taps a foot. It seems that everything moves except his brown eyes, which stare intently at the short flicks made by the fountain pen tucked in his right hand. Occasionally, though, the eyes dart sideways to the open pages of an obscure reference book, such as *Guide to Corals and Fishes of Florida, the Bahamas, and the Caribbean.* At other times they rise to inspect the scaled-down, homemade frame of a ship's hull, which hangs overhead in his studio among a collection of bric-a-brac including—but by no means limited to—a human skeleton and a giant plastic mosquito. Finally, the eyes relax slightly. Without changing expression, Macaulay crumples up yet another piece of tracing paper and lobs it in the direction of a small wastebasket. "This is why, when I finish one of these books, I never want to talk about it again for the rest of my life," he says.

He's kidding, of course. More or less. Funny and serious are entwined in the life and much of the work of David Alexander Macaulay, the 45-year-old illustrator of 15 books in 19 years, all but two of which he also wrote. Most of these works have been marketed to children, and Macaulay has won a passel of prizes within the booming kid-lit field—among them his most recent coup, the 1991 Randolph Caldecott Medal, the American Library Association's designation of his *Black and White* as 1990's most distinguished American picture book for children. (In 1990 he received a James Smithson Bicentennial Medal in recognition of distinguished achievement in the arts.)

While there is no mistaking Macaulay's glee over the attainment of this long-sought honor—or the pleasure of his publisher, Houghton Mifflin—there is also no misunderstanding his opinion that he's not turning out stuff for kids only. "There are things I think people have a need to know," he explains. "I want them to look around more—to pay attention to the world around them, to take an extra moment to look at things, to think about things." About that he's not kidding.

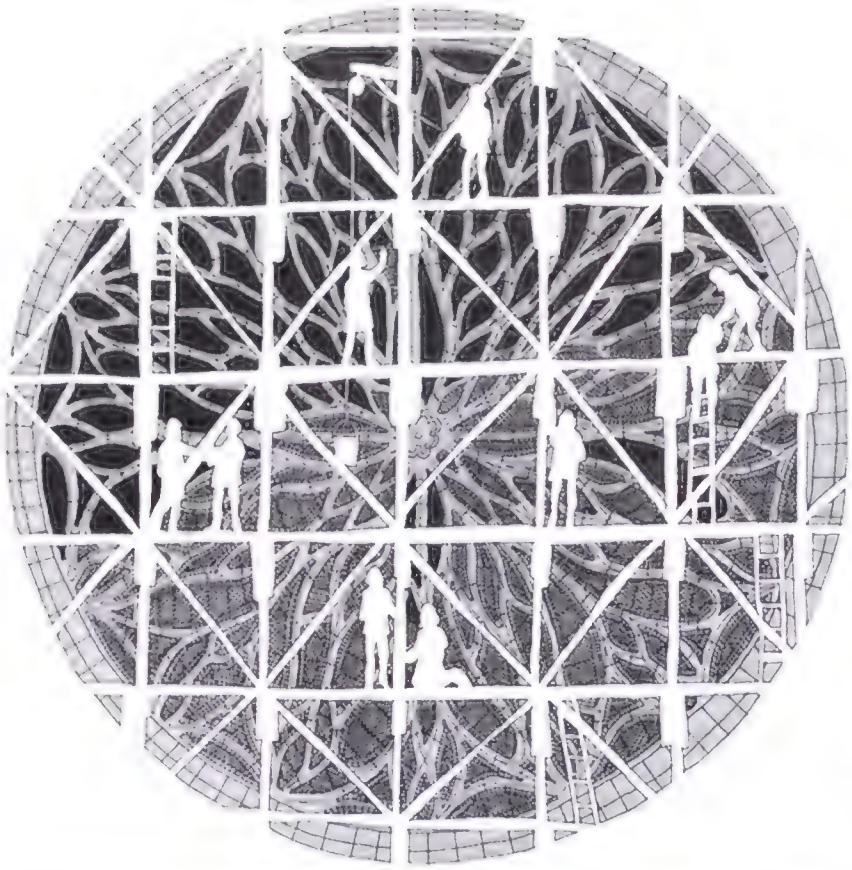
Macaulay lives with his second wife, Ruth, and their 10-year-old daughter, Charlotte, in a neatly kept post-Victorian house on the elderly but mostly fashionable east side of Providence, Rhode Island. Part of his time is spent as an associate professor of illustration at his nearby alma mater, the Rhode Island School of Design (RISD), where he is best known as the creator and teacher of a course whose title, "Think Now, Draw Later," gives serious pause to goal-oriented undergraduates paying $14,036 in annual tuition. During class, Macaulay tosses out abstract ideas—for example, fear or amazement—that students must then illustrate. He proclaims the workshop a "Jane Fonda course"—a sweaty exercise for the brain. "My role there is as a kind of gym teacher," he says. "I want the students to get into the habit of thinking long enough so that when they do sit down to make a picture, they've got a reasonably solid framework on which to build an image." Thomas Sgouros, a fellow faculty member, sees Macaulay as possessing an important teaching skill: "He recognizes that one of the first obligations of a speaker is to keep the audience awake."

"I like an audience—but on my own terms"

Macaulay was recently appointed head of the department of illustration. "They call me sir, now," he declares, but notes sadly that the promotion is tempered by the fact that there isn't any place in his new office to plug in his Mickey Mouse telephone. In any case, he will continue to teach. Good thing. The classroom provides him with an eager crowd of listeners, something he dearly enjoys: "I just like being with students. And I like performing. I like an audience. But I like an audience on my own terms—one that's interested in and excited about the same things I'm interested in and excited about."

Alas, an audience is something Macaulay normally doesn't get inside his studio, a packrat's nest shoe-

"There are things I think people have a need to know," says the inquisitive Macaulay, here in his studio.



Three drawings from *Cathedral*, author-artist's first book, show his style; above, rose window is glazed.

In 1280, foundation of soaring building's transept is underway, as seen from a bird's-eye perspective.

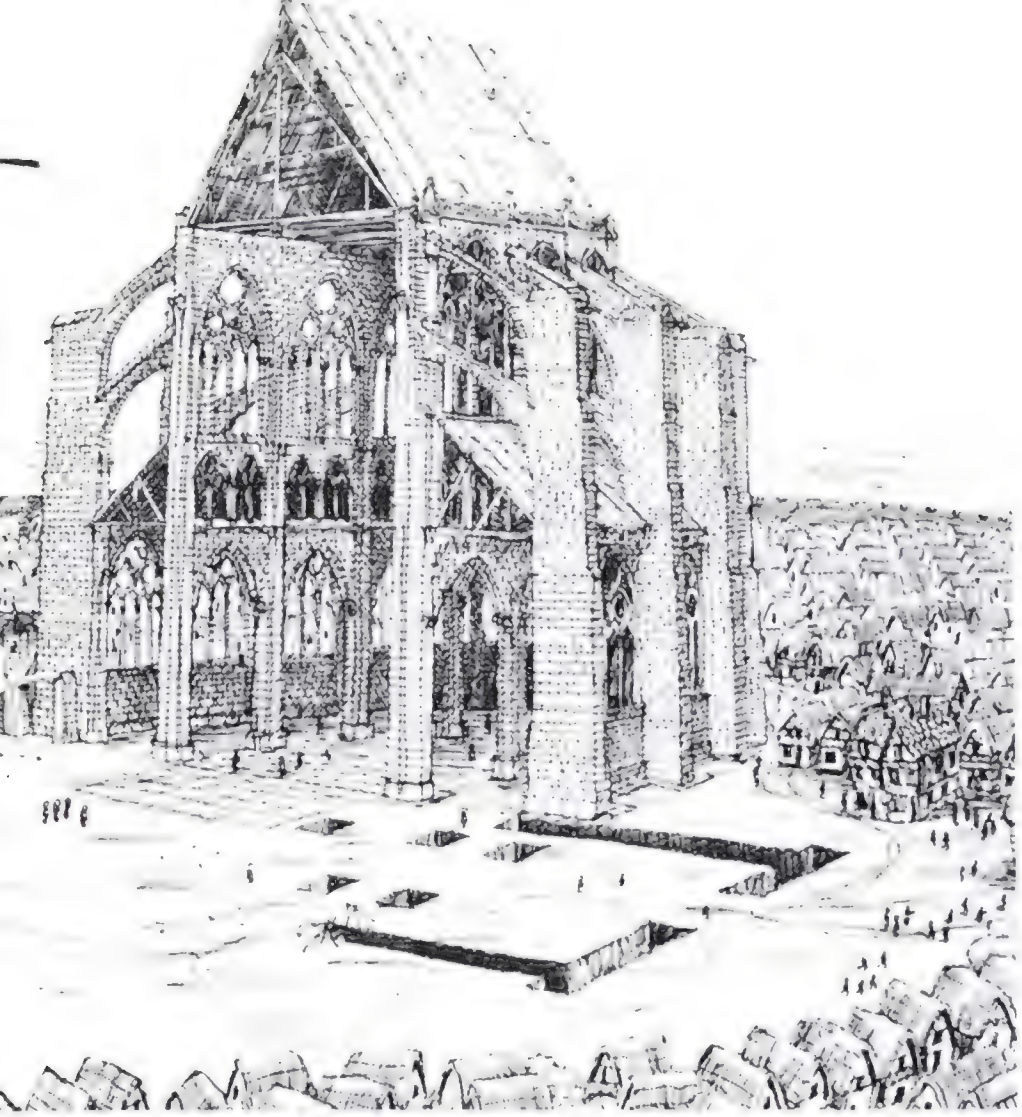
horned into a colorful, 108-year-old commercial shell in the working-class town of Warren, southeast of Providence. Located 200 yards from the east bank of the Warren River, the two-story structure is a local historic landmark that Macaulay accurately describes as "the only building on the street that looks like it was lifted from the set of a Western movie." Its innards house, among many other things, a Victorian reed organ, several HO-scale electric trains, a Pawtucket Red Sox baseball cap, a Victor Talking Machine, numerous columns of toy soldiers, an electric wall clock that advertises Plasti-Kote Linoleum Finish, a paper model of the Taj Mahal, a Mac Gregor Official basketball and a 1-year-old puppy named Chaos, who is described by Ruth Murray, Macaulay's assistant, as "part beagle and part traveling salesman." There are books here, too, row upon row of them, stretching from floor to ceiling, with titles that range from *Behavioral Neuroscience*, *The Practice of Local Government Planning* and *Alf Gover's Cricket Manual* to *Gnomes*, *Kitsch* and *The Royal Family Pop-Up Book*.

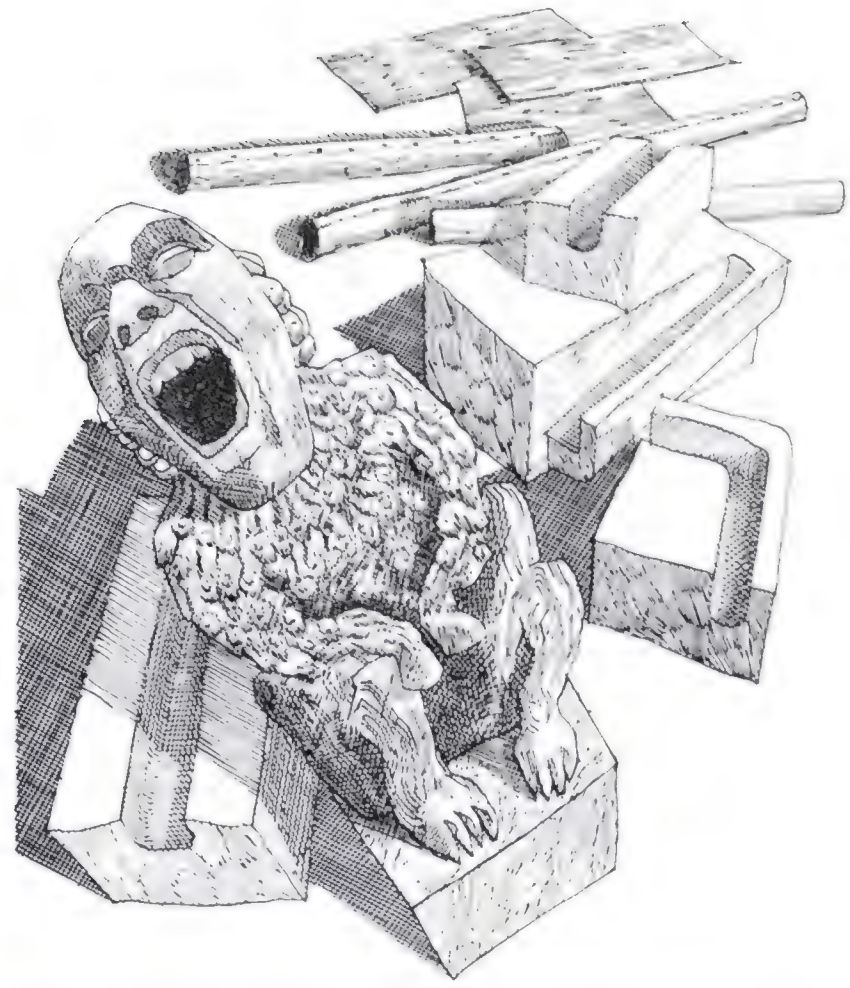
Macaulay's own formidable output of books can be divided into Early How-to, Late How-to and All the Other Stuff. "Early" is a series of highly detailed, step-by-step construction manuals for people who can't get enough of mortar and stone. "I was never very good at drawing people," he explains, "but I've always been good at bricks." *Underground*, for example, takes readers below the streets and buildings of a modern American city—so deep that they're actually looking up at the piles used to support enormous buildings. "I love learning about dumb stuff like sewers," he admits. "There's nothing more exciting than a good sewer." Drawn in pen and ink, and incorporating Spartan, typically Macaulayesque prose, each book is remarkable for the different visual perspectives it offers. In *Cathedral* readers travel 130 feet skyward to the scaffolds used in constructing a vaulted ceiling.

In the "Lates" he loosened up and stretched out. *Unbuilding* pays tribute to the theory that what goes up must come down: it shows the Empire State Building being painstakingly dismantled by the fictional demolition firm of Krunchit and Sons after purchase by the Greater Riyadh Institute of Petroleum, a.k.a. GRIP (note King Kong's hand lurking in a corner of page 51). *Mill* ends in a fictional Rhode Island town as the last surviving 19th-century mill goes condo.

The last of the Lates, *The Way Things Work*, is Macaulay's most popular publication—"the right book at the right time," he calls it. But he does not call it fun. The 384-page compendium, which reveals the inner workings of everything from the zipper to the robot, was four years in the making, or a year longer than planned. The technical writing was not his (he lists himself as "illustrator" on his tax returns), although he did write episodes about a Stone Age researcher who

Nathan Cobb, of the Boston Globe, *wrote on Marco the Magi (November 1981), Rotisserie Baseball (June 1990), before tackling the way David Macaulay works.*





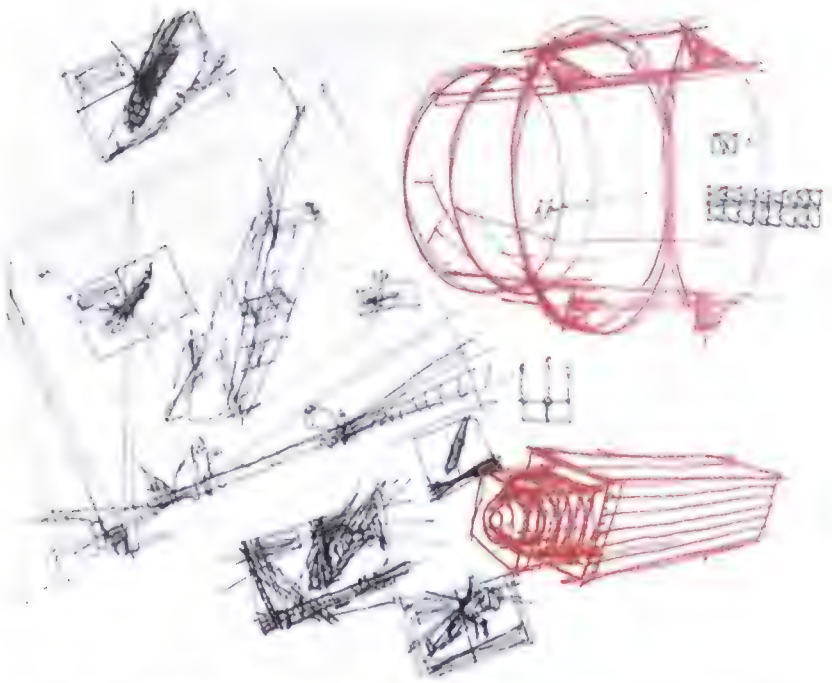
Gargoyle (a favorite Macaulay creature) is just one of many downspouts that funnel rainwater from roof.

carries out scientific investigations with the not-always-able assistance of a woolly mammoth—whose use as the fall guy in demonstrations of the principles of physics (p. 78) must surely make it a martyr with animal rights activists everywhere. Mostly, he churned out vast quantities of drawings for the book, mountains of work that he still refers to as "an incessant nightmare." He considers it ironic to have made a book that was really about physics, confessing, "I took physics in high school and college, and did OK up until the Doppler effect. After that it was straight downhill." Ruth Macaulay recalls the in-depth primary research required by the project: "I'd come home and find the toaster or the lawn sprinkler in pieces."

And then there's All the Other Stuff. (It could be called the Really Funny Stuff were it not for *Baaa*, an apocalyptically dark fable of a diminishing herd of sheep that exists after humans disappear. The book can be read in more than one way, one of which is not as a children's bedtime story.) *Great Moments in Architecture*—"unauthorized by both the Metropolitan Museum of Art and the British Museum"—is a send-up of the world's architectural icons. Macaulay lampoons archaeologists and the King Tutankhamen hoopla in *Motel of the Mysteries*, a chronical of the discovery, in the year 4022, of the ancient 20th-century Toot 'n' C'mon Motel, a structure that was buried by junk mail when third- and fourth-class postage rates were accidentally reduced (p. 81). A short explanation of cause and effect, *Why the Chicken Crossed the Road*, was written primarily for comic relief while he was grappling with *The Way Things Work*. *Black and White* is a quartet of apparently but not necessarily connected stories about a train, a boy, a herd of Holstein cows, a nuclear family of four, a gathering of rail commuters, and an escaped criminal who looks suspiciously like one of the leading characters in *Chicken*. Of *Black and White* the creator muses, "People ask, 'Was it real? Does any of it matter?' I've got librarians across the country wondering how it will change their lives. They don't realize it was for fun."

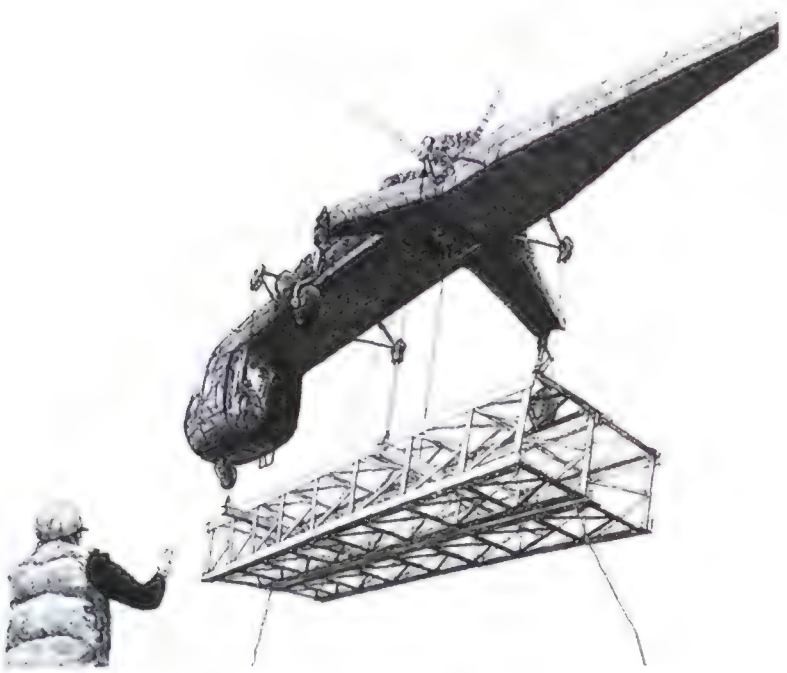
Macaulay's success can be measured in raw data: his books have sold close to 2 million copies in the United States alone; 14 of the 15 are still in print; he has 14 foreign publishers; 3 of his titles have been made into programs that have aired on public television. Houghton Mifflin pretty much lets him have his way. "If he wants something in a book, it goes in," says his editor, Walter Lorraine. But Lorraine also admits that when he and Macaulay repair for a business lunch to the Locke-Ober, a Boston Brahmin hangout where they discuss book ideas over beef tenderloin and hot fudge sundaes, he's always a bit wary.

He must therefore be pleased with Macaulay's work-in-progress, due out in the spring of 1993. Entitled *Ship*, the pen-and-ink book depicts the 16th-century birth and 20th-century uncovering of a fictional 67-foot-long caravel. This small, light sailing vessel was the type used by the Spanish and Portuguese in the 15th and 16th centuries, and was the ship of choice for



Rough, preliminary sketches for a rooftop scene in *Unbuilding* illustrate the process of getting it right.

Next, Macaulay focused on view from below as helicopter hovered over roof of doomed skyscraper; he liked it.



In final drawing, as seen in book, helicopter lowers section of crane to worker atop Empire State Building.

Columbus and other explorers of the era. By traveling back and forth between the construction of the ship and the discovery of its wreck in the Caribbean some 500 years later, Macaulay will deal with both history and how history is created. "It's not about what happened in the early 1500s," he emphasizes. "It's about what we think happened, and why we think it."

Never at a loss for work-related reasons to travel—to Egypt to research *Pyramid* (paying $80 in baksheesh to climb the Great Pyramid), to France for *Cathedral*, to Italy and France for *City*, and so on—Macaulay during the late 1980s hooked up with the Columbus Foundation and the late designer John Patrick Sarsfield, under whose direction a re-creation of a 16th-century caravel was being built at Valença, in eastern Brazil. There he sketched the 66-ton caravel-under-construction (it will sail to U.S. waters this summer). He also inspected the underwater remains of an early 16th-century shipwreck off Mexico's Isla Cancún.

Those were the first steps in a typical Macaulay build-a-book schedule: in-depth research and on-site sketches, followed by dozens of drawings on tracing paper, followed by finished drawings. But if these labors are downright enjoyable, he considers the production of his finished drawings to be "simply a manufacturing business." Putting words together is still not his idea of a good time, either, although he allows that his life has been made considerably more pleasant by word processing and spell-checking.

People who know Macaulay reveal him to be a thoroughly organized, disciplined, overextended and inquisitive workaholic who is forever scribbling ideas on scraps of paper, then cramming this napkin art into his pockets. He is admittedly compulsive, even obsessive—a man without hobbies or much of an inclination to take vacations. So there he is in his studio, hovering over his tracing paper, sorting through the flotsam and jetsam that drifts across the top of his two drafting tables, poring over nautical charts, examining rigging guides, reading authentic fish stories. By drawing his ship from various angles, he is teaching himself how a caravel is built and how it functions. How it works.

Installing the main chain plate with care

"A two-year course in teach-yourself underwater archaeology and boat building," is how he describes the process of producing *Ship*. He might spend hours pondering precisely where the vessel's main chain plate, which prevents the rigging from touching the hull, should be located. This investigation may require a phone call to consultants at Ships of Discovery, a maritime history group. "I'll get a consensus and go with that," he says. But does it really matter if the main chain plate, which most people don't know from a blue plate

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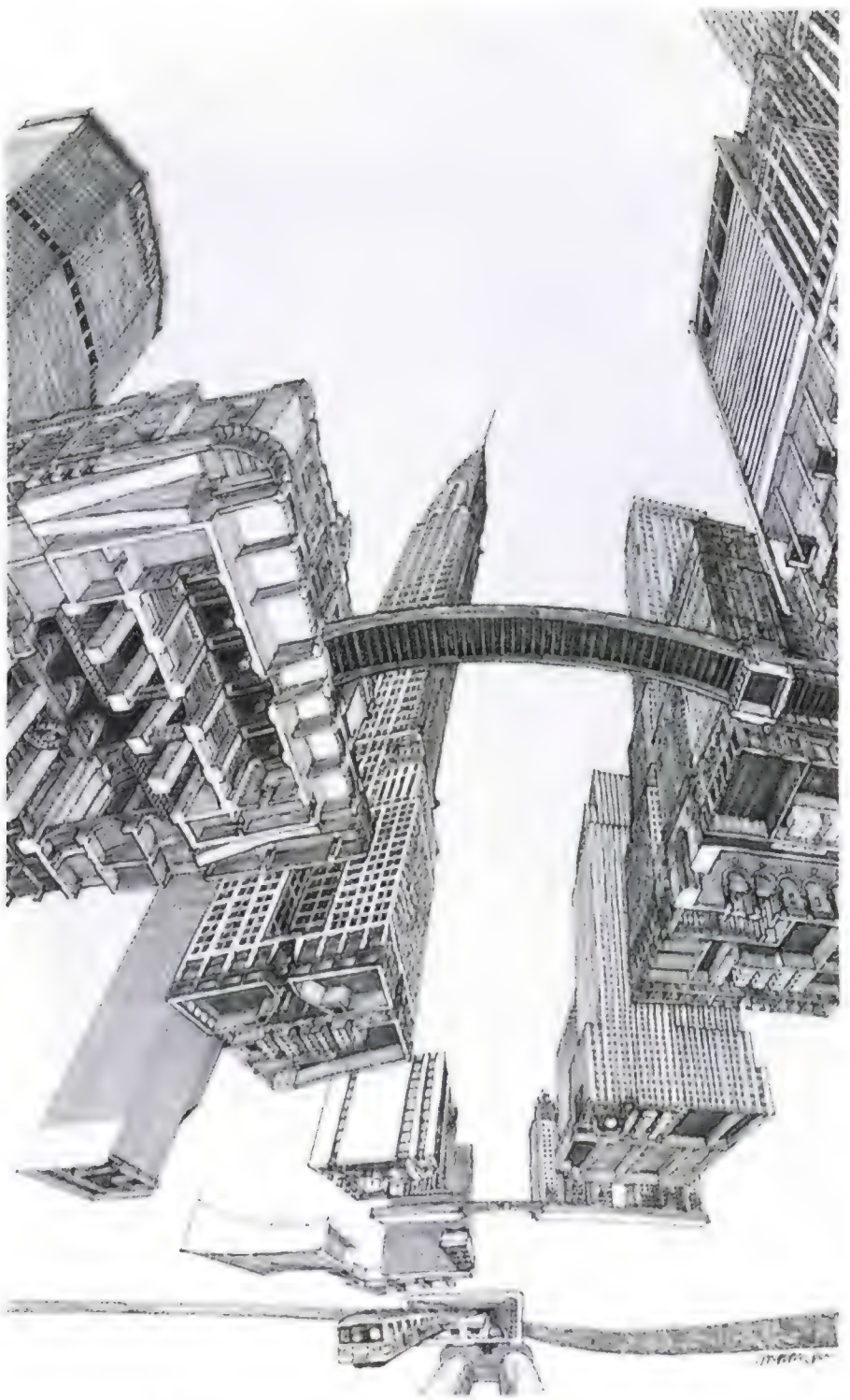

He's a great believer in "point of view," witness Manhattan's East 42d Street as seen from the subway.

special, is in exactly the right place? In a word, yes. If he gets it wrong, readers will be on him like wolves, just as they were when, in *Unbuilding*, he made New York's Fifth Avenue circa 1931 a one-way street, as it is today. Too bad. In 1931, Fifth Avenue was a two-way street.

This particular error was ironic. After all, hadn't Macaulay carefully studied the Empire State Building in the *Encyclopedia of Science for Girls and Boys* as an English schoolboy? Later, as an 11-year-old who had just immigrated aboard the SS *United States* to the land of fat bicycle tires, he had been ecstatic to discover that he could actually see the top of the 102-story structure from Bloomfield, New Jersey, where he settled with his parents and younger brother and sister. (Macaulay retains his British citizenship but none of his accent. "England," he says, "still very much feels like home.")

Back in the English city of Bolton, outside Manchester, and before that in the Midlands brewing town of Burton on Trent, young Macaulay had watched his father, James, a textile engineer, make wooden toys and household items. And his mother, Joan, seemed constantly to be sewing or knitting. "There was always some process under way," he recalls. So he built things, too. "I made working models all the time. I made things out of cardboard, sticks, tape, thread, spools. I would make cable cars using spools, and running thread from the floor to the molding. I made an elevator out of a shoebox. But whatever I made had to work. That was the thing. I built things in order to understand them better. Now I do it for books. Then it was for fun. You know, I never had electric trains as a kid. I don't think I've ever gotten over that. I'm scarred."

Did a fire engine spark a career?

Significantly, he refers to the people who buy his own books as viewers, not readers. "As a kid, I did not read books. I liked to look at the pictures. I liked to have books read to me, but I didn't read them myself." He was initially far less interested in making pictures than in looking at them, unless you count his drawing of a fire engine that so impressed his fourth-grade teacher she hung it on the classroom wall for all to see. "I liked that feeling," he adds.

Later, as a New Jersey teenager with a funny accent—at least for a time—Macaulay found another use for his budding artistic talent: "I used my drawing ability to win friends among the cool kids who had sweaters and socks that matched, to win respect because I could do something they couldn't do." He also painted his first major work: a 4-by-8-foot portrait, on masonite, of Washington crossing the Delaware. At the start of his junior year in high school, his family moved to Rhode Island. Two years later he entered the Rhode Island School of Design as an architecture major because "architecture was an artistically oriented but still safe professional choice." He ended up liking the school considerably more than his career choice. A summer spent working in a local architect's office—"drawing stairwells and bathrooms for a school"—closed the case. He would do something, anything, other than architecture.

After graduating in 1969, Macaulay taught junior high school art for a year. "I was a terrible teacher then," he recalls. "I liked the students a lot, but I don't know that I taught them anything because I was basically ill-equipped. I had no idea how to deal with kids who weren't interested in anything else but each other." He later did interior design work, traveled through Europe, got married and had a daughter,

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Hapless woolly mammoth gets shampoo, set, manicure, in "Wheel and Axle" part of *The Way Things Work*. A mechanical dryer made of feathers and spokes, with sprightly workers leaping to supply the power, creates the steady wind required for speedy drying. Macaulay considered ludicrous a suggestion that manpower could be replaced with a constant stream of water.

Elizabeth (and, eight years later, got divorced and remarried), did freelance textbook illustration, taught high school art for a year. He also became interested in illustrating children's books "because it looked to me like the people who did that were having more fun than anybody else."

He unsuccessfully shopped several ideas to publishers, the most notable being "Etienne and the Gargoyles of Gastonne," a still-unpublished story about a gargoyle beauty pageant. To Walter Lorraine and Houghton Mifflin, however, neither the subject nor the style was of much interest. "They missed a marvelous opportunity to publish a classic," Macaulay reasons with a straight face. What did interest Lorraine was Macaulay's enthusiasm for the Gothic cathedral that was the story's setting, so he simply asked, "Why not do a book about a cathedral?"

Macaulay pocketed a $1,000 advance and spent ten days in Amiens, north of Paris, making drawings and taking pictures of the local cathedral. He then hurriedly wrote the text in his hotel room. The project was finished within three months. "You could see immediately that it would be successful," Lorraine says today of *Cathedral*. "You could see the clarity of presentation, the appeal of the artwork—seeing the making of this cathedral from beginning to end." Macaulay himself wasn't quite so impressed. "I didn't know what I was doing," he says. "All I knew was that I would make the best book I could make." It became a Caldecott Honor Book and was named by the *New York Times* as one of the ten best illustrated children's books of 1973.

Like *Cathedral*, much of Macaulay's subsequent work is a kind of elaborate show-and-tell, with emphasis on the former. If he still struggles with his serviceable, straightforward prose—Ruth Macaulay, who teaches American history, edits his copy before he ferries it 48 miles north to his publisher—the labor doesn't show. Nor does it much matter. "He's truly able to tell the story with his art," Lorraine says; "it has a kind of verbal content." "There's nothing magic about my books," the illustrator himself contends. "They're accessible. That's what I do. I make books that are accessible."

But are they art? First and foremost, Macaulay sees himself as an illustrator, solving problems, making things clear, teaching. "But to me," he says, "the challenge is greater than that. It is to make my work into art, to make it as much of myself as possible, to make it really come from within, as opposed to being a response to someone else's instructions. I see myself as getting excited about something and wanting to share it with other people. It's similar to going out and making a landscape and giving it to someone. This is what I make —these books." And these books are meant to teach.

The means to this end is often Macaulay's sly humor, his way of getting viewers to enjoy themselves and therefore pay attention. Draw a rat lazily reclining in

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It could very well be the most dangerous of accidents.

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"Side impacts put occupants in a very vulnerable position," states Stefan Nilsson of Volvo's Safety Laboratory in Sweden. "In front and rear crashes, you have the protection of energy-absorbing structures. In head-on collisions, there's a driver's side air bag, but many people don't realize air bags only inflate in a narrow range of frontal collisions."

While Volvos have had reinforced steel bars in the side doors for years, Volvo's new Side Impact Protection System (SIPS) goes beyond that, changing the very way a car deals with the forces created in a side impact. The passenger cage has been redesigned to help spread out the energy of a side impact through the entire frame. Energy is dissipated. The likelihood of vehicle intrusion reduced.

"SIPS is a breakthrough for the industry," says Nilsson. "Already we are seeing significant results from SIPS in our crash testing and computer modeling."

Regulation was recently passed that says that by model year 1997 all new cars sold in the U.S. must meet new side impact standards. Today, Volvo 940, 960 and 740 series cars, with SIPS standard, already meet those more demanding requirements.

"No car can offer 100% protection," comments Nilsson, "but with things like energy-absorbing structures, air bags, and now SIPS, we are getting closer."

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VOLVO

*U.S. Department of Transportation, NHTSA, General Estimates System 1990

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Borrowed skeleton, shower cap and his own bathtub (above) were models for drawing of Inner Chamber in *Motel of the Mysteries* (opposite). In the year 4022, archaeological excavations of Toot 'n' C'Mon Motel in ancient Usa reveal varied traces of a lost civilization, among them: a body wearing the Ceremonial Head Dress (8), lying in a white sarcophagus (9) that had been sealed by a translucent curtain (10); a music box (6) located above the Sacred Urn (2); some articles used in preparing the body for its final journey (1), (4); the Sacred Parchment (5) with its rare Sacred Point perfectly preserved (apparently pieces of parchment were placed in the urn during the burial ritual).

the sewers of *Underground* (the rodent was originally depicted reading a tiny book, but even Macaulay conceded this was going a bit far). Create a two-page depiction of the toilet system, users included, for *Castle*. Fashion a tiny Don Quixote to tilt against a jet engine in *The Way Things Work*. Says David Porter, also at RISD and Macaulay's collaborator on *Help, Let Me Out!*, "David is the Great Explainer, but it's the wit that makes his work pleasurable. In fact, the wit is the central engine of his lucidity. It's his signature."

Like much of his work, Macaulay himself is—to use the language of book blurbs—a mixture of wit and wisdom. On the one hand we have this performer from the decidedly low-key school of comedy, quietly knocking 'em dead at book signings and trade conventions, recalling that he measured his progress on *Mill* by the number of two-pound bags of M&M's he consumed, taping the empties to his studio ceiling (final count: 17 bags, 34 pounds). On the other, we have the president of the board of trustees of the Slater Mill Historic Site, a trio of 18th- and early 19th-century buildings in downtown Pawtucket, earnestly fretting that much of what surrounds us is being lost simply because people don't notice. "It's a real problem keeping something like this going," he says of Slater Mill, "especially when people have been fooled into believing that it's always going to be with us because it's all in the history books. Look around," he warns, "because if you don't, what's of value will be gone, and you won't even notice it."

Which is not to say that there are two David Macaulays, although as deadlines loom, the one and only would concede that this might be a good idea. "David is very serious about his work," Thomas Sgouros maintains, "but he's not overly serious about himself. That's one of the reasons he jars the students. He keeps them off balance—he poses ideas and situations in a way that's a little off track. They spend a lot of time asking themselves what he wants. But he doesn't want anything except for them to think on their own."

And so, in a dreary second-floor classroom in downtown Providence, where there are bars on the windows and fluorescent lights overhead, Macaulay tells a group of students that they have 50 minutes to illustrate the day's randomly chosen subject: jet lag. When they finish, they pin their drawings to a wall and await his "crit." Examining a picture of a bird draped over a thick branch, he says, "This is jet log, not jet lag." Eyeing an illustration of a group of people confronting an oversize luggage conveyor: "Oh, the airport in Munchkinland." Eventually he asks the class: "Is there something up here on the wall that really touches a nerve, or is it just obvious stuff? I mean, where's a view of jet lag that you can really respond to? You can use obvious stuff, but you should use it in an unusual way."

A few minutes later, the students trundle out. Macaulay watches them leave. "It's like chipping away at a granite block, hoping you make an impression," he tells a visitor. "Sometimes you actually do."

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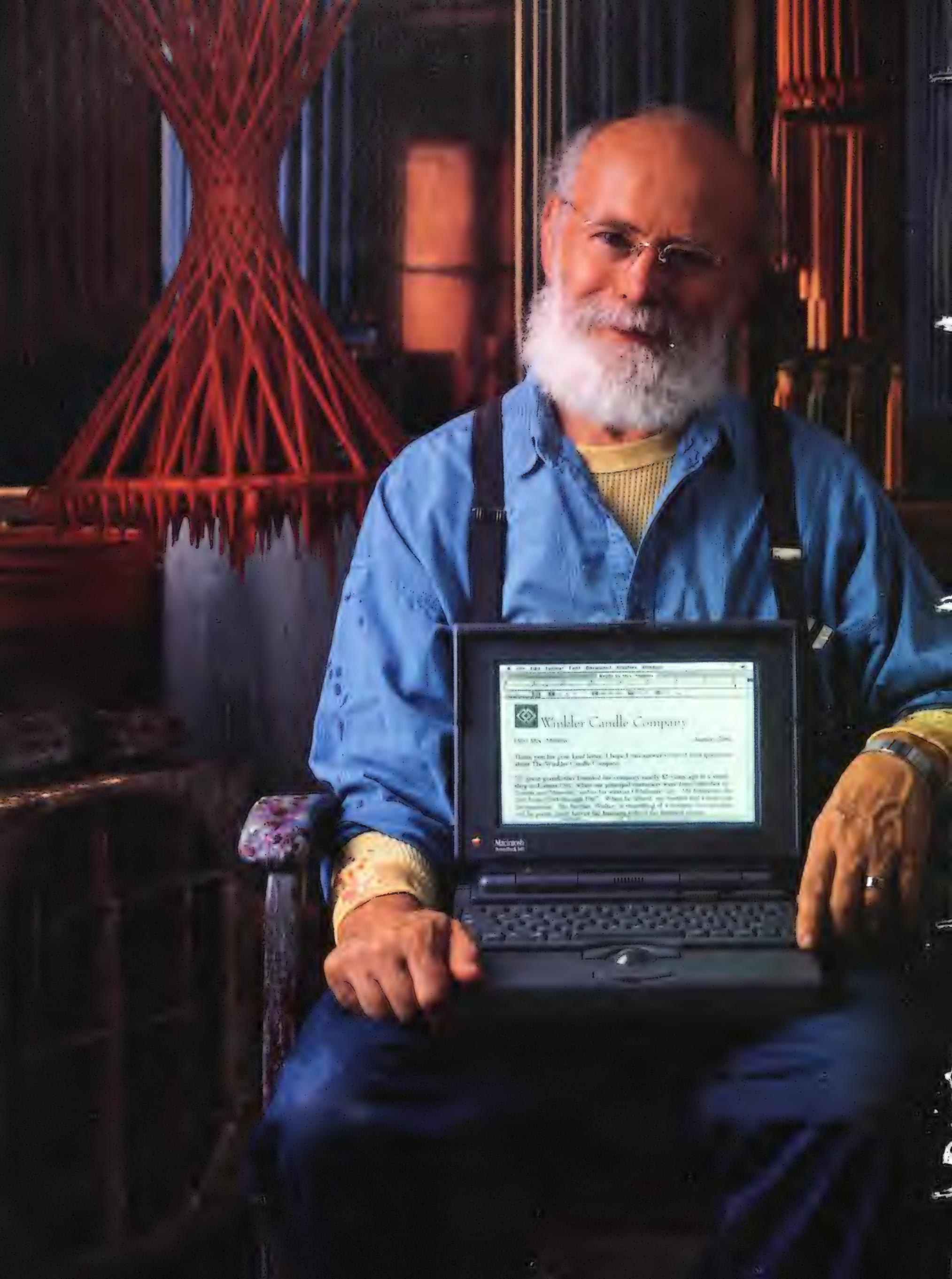
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Portrait of Margaret O'Neal Timberlake Eaton made in middle age seems to resemble the wronged, virtuous wife that Andrew Jackson thought her, more than the vulgar, sexy adulteress of her reputation.

By David Nevin

To the President, Peggy Eaton was chaste indeed

But the ladies of Washington disagreed so violently they shook Andrew Jackson's government and brought down the Cabinet

In 1829 Tennessean John Eaton married the fair Peggy and became President Jackson's Secretary of War.

It was one of those Washington scandals. A Cabinet officer involved with a woman of great beauty and undeniable talent for attracting men. Before it was over, relations had been severed between the President and the Vice President, the Secretary of State was out, and the entire Cabinet had been dissolved. People asked themselves if the nation's moral foundations were crumbling. As current as today's headlines, you might say—but it happened 161 years ago.

Scandal, of course, is hardly new. David and Bathsheba established that. Rome twittered over Antony and Cleopatra. Customarily, though, the fun of scandal and the aftereffects are ephemeral. Only occasionally do the boiling rage, cruel laughter, hurt feelings and sheer hunger for revenge that mark a truly first-rate scandal seize history by the forelock, helping edge it onto a new course. So it was in 1829 with what Washington wags instantly began calling the Petticoat War.

The dramatis personae were simply splendid. The President in question was Andrew Jackson of Tennessee, a man of violent passions, deep in his suspicions, implacable in his hatreds. The Vice President was John C. Calhoun of South Carolina, noted for immense but icy intellect and overpowering desire for the Presidency. The woman was gorgeous Peggy Eaton, a barmaid with a vocabulary to match her temper—flirtatious, compelling, magnetic to men—who rose to some heights on beauty and force of personality.

She was born Margaret O'Neal in the last month of the 18th century. In 1796 her father, William O'Neal, had advertised himself as a cooper. But their brick house at 2007 I Street was also a tavern and hotel serving as second home to Congressional and Administration leaders as the government began moving into its permanent digs in George Washington's brand-new dream city.

The city was scarcely more than the Senate wing of the Capitol building on Jenkins' Hill at one end of Pennsylvania Avenue, and the white-gray limestone President's mansion at the other. The present-day Mall was a pasture cut by a sewage ditch. Yet crude and dusty as the city was, a self-important social structure was taking form that would become a central ingredient of its life—and of this story.

As a delightful doll of a child, Peggy begged bedtime stories from lonely Senators, Congressmen and Cabinet members far from home and boarding with O'Neal. She soon blossomed into a woman of natural beauty reinforced by powerful intelligence. She had dark eyes, heavy lashes, rich auburn curls, a splendid figure displayed in low-cut gowns and—that very human failing—ample pride. "While I was still in pantalets and rolling hoops with other girls," she said in an autobiography 40 years on, "I had the attentions of men, young and old, enough to turn a girl's head."

A Secretary of the Navy's nephew committed suicide

As first President from the "West," rough-and-ready Jackson profoundly changed the country's politics.

His beloved wife, Rachel, died soon after the 1828 campaign, killed, he thought, by cruel slander.

over her. The Adjutant General of the U.S. Army proposed, but "all the wooings of December could not win May." After her father foiled her elopement with one Major Belton, she fell in love with a Captain Root. Belton challenged Root, and a duel was narrowly averted before Peggy fell out of love with Root. This, she reports, "brings my history to my sixteenth year." Her hatred for poor Root, she found, was "quite as delicious" as love had been.

In the end, Peggy married a handsome weakling named John Timberlake, a Navy purser who became an alcoholic wastrel, failed in business while ashore and eventually had to be posted back to sea. She was running her father's tavern by then and was widely considered a woman of easy morals. Soon after her marriage, in 1818, a handsome, rich young widower named John Eaton, a Senator from Tennessee, had taken rooms in her father's tavern. When Timberlake went back to sea, Eaton and Peggy grew closer. Indeed, they became a couple—to invite him to dinner was to have Mrs. Timberlake as well. Rightly or wrongly, everyone took her for his mistress. Society frowned, but Eaton was a Senator, after all, no small matter then as now. He was almost a son to Andrew Jackson and also a rising star in his Presidential movement.

Jackson narrowly missed election in 1824—John Quincy Adams took office instead, in a cloud of accusations and scandal that serves as an angry preamble to our story. The furious 1828 campaign began almost immediately. Crippled by the accusations and the clear shift of popular favor toward Jackson, Adams fought back with what became one of the foulest campaigns in U.S. history, modern times having no corner on dirty politics (SMITHSONIAN, October 1988).

Attacks on Jackson focused on his wife, Rachel, because of an ancient marital scandal the couple thought they had lived down. From the Atlantic to the westernmost limits beyond the Mississippi, anti-Jackson forces flayed Rachel as a vile adulteress and bigamist. Jackson, who earlier had killed to defend his wife's reputation, never forgave her attackers. The American people, too, rejected the slander, and in 1828 they made Jackson the seventh President of the United States.

Her husband managed to shield Rachel from much of the public comment. But a month after the election she learned for the first time how violently she had been pilloried, what calumny he had borne for her, and she collapsed in hysteria. A week later she died of a heart attack. Jackson never doubted that malignant gossip had killed her. He wept when he buried her. "These

David Nevin is the author of Dream West, *the celebrated historical novel about explorer-general John C. Frémont later made into a TV miniseries.*

Floride Calhoun, wife of the Vice President, found Peggy too vulgar for a gentlewoman to tolerate.

Main casualty of Petticoat War was John C. Calhoun, who lost his chance at Jackson's help to Presidency.

tears are due her virtues," he said. "She has shed many for me." In Washington, a lonely widower in the White House, he hung her portrait so that he saw it last on sleeping, first on awakening.

Meanwhile, in a faraway port, Purser John Timberlake had cut his throat. Washington talk said he had despaired over Peggy and Eaton. The Navy said his accounts were short. Peggy said he was maddened by an asthmatic attack. With that settled, she turned to Eaton. There were no impediments to marriage, now. If Eaton gulped, he did it in private, for even then Peggy was not a woman to gulp at. Eaton wrote Jackson a letter, the gist of which was that marrying Peggy might cause gossip damaging to the Jackson Presidency. More gossip? For the President, the very question was a red cape shaken before the bull.

In 1781, when Jackson was 14 and the British invaded the uplands of the Carolinas, a Redcoat colonel had ordered Andrew to clean his boots. The skinny lad had drawn himself up. "Sir, I am a prisoner of war, and claim to be treated as such!" The officer drew saber and slashed the lad's hand and forehead. Jackson carried both scars, and a proud attitude, all his life. The ladies of Washington might have studied this beginning.

Later, as a backwoods Tennessee lawyer, he had boarded in a blockhouse with the widow of Col. John Donelson, a Nashville founder. Donelson's beautiful daughter, Rachel, had recently arrived in flight from an abusive husband. Jackson fell in love with the force that he gave to everything. Rachel responded. The husband appeared. Jackson was a man who raced horses, fought cocks, bet on dice, drank whisky. He also caned and horsewhipped those who affronted him. Now he thumbed a ten-inch blade and eyed the man meaningfully. The worried husband asked a local magistrate for protection.

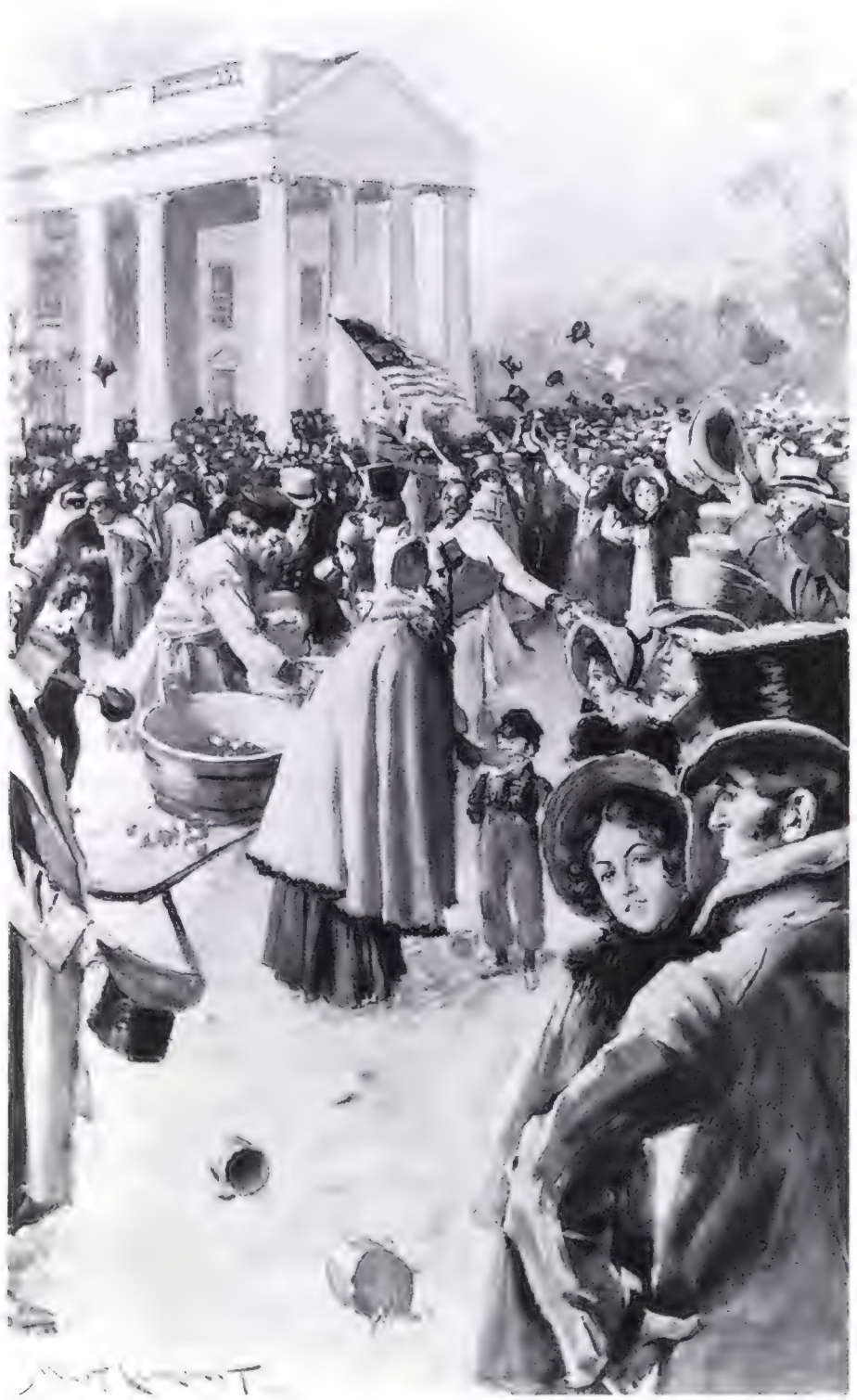
The husband also sought a divorce, then an incredibly difficult procedure since each divorce required a separate, specific bill to be introduced and passed by the State Legislature. Eventually, word came from Donelson relatives that Rachel was free. In August 1791 Jackson married her, but two years later they learned no divorce had been granted—the Legislature had merely authorized the court to proceed with the trial. Technically she was a bigamist, and they were living in sin.

Jackson and Rachel were shaken by the shame of it all. Adulterers! Today it's hard to understand, but divorce itself was shameful then, and the world, as always, was ready to believe the worst. Soon divorce was granted the husband—but on grounds of Rachel's adultery. The Jacksons went on to live down the disgrace. The rough-and-ready Jackson's devotion to Rachel became legendary. In a famous duel he killed a man who spoke Rachel's name in taverns. For her part,

Rachel grew famous for gentle kindness, often serving as a brake on her husband's temper.

History books and old songs still ring with admiration for Jackson's victory, as a militia general, over 10,000 British troops in the Battle of New Orleans in 1815; the battle, in fact, ultimately led to the Presidency. But three years later Jackson led an army into Florida to punish Seminole Indians and wound up seizing the entire province from Spain (SMITHSONIAN, April 1988). Immediately a controversy arose that in time would bear directly on our story. Had he exceeded his orders, seized foreign territory illegally, acted as an international pirate?

Jackson claimed he was following President James Monroe's wishes, but Monroe's own Cabinet wanted to censure the fiery Tennessean. In Cabinet meetings, one of the strongest voices raised against Jackson was that of the ambitious Secretary of War, none other than John C. Calhoun. Monroe, a peaceable man, half convinced Jackson that Calhoun had supported him. A decade later, with Jackson now in the White House, Calhoun needed to keep safely buried all recollection of the condemnation he had offered so long before.



At 1829 Inaugural, disorderly mob poured into White House, trashing it with cigar butts and muddy boots.

In 1828 the new President was 61, Calhoun, 46. An upland South Carolinian, Calhoun was celebrated for ascetic self-discipline and intellectual power, but resented for his cold arrogance, especially his demolishing lesser men's pretensions to the right to utter opinions in his presence. At Yale, president Timothy Dwight predicted that Calhoun would lead the country someday, and Calhoun aspired to the Presidency almost from graduation. But he started his career by going back home, practicing law and paying court to a pretty lowlands cousin, Floride.

Floride was a catch, and that also bears directly on our unfolding story. Her wealthy, prestigious Charleston family looked favorably enough on the upland youth, but the contrast between plantation and dirt-farm life was plain. There is reason to believe that Floride, whose temper grew steadily worse as she aged, did not forget that difference.

When Calhoun and Jackson first collided

Calhoun made it into Congress in 1811, and instantly other Congressmen felt—and said—they were in the presence of a future President. By 1817, at age 35, he was the brilliant Secretary of War who reorganized and modernized the Army. When he was running for President to succeed Monroe, he collided with Jackson's rising momentum for the first time. He then lowered his sights to the Vice Presidency and was elected to serve the Presidency that Adams won so narrowly in 1824. Four years later he was again chosen Vice President, this time on Jackson's ticket. Now rumors of Calhoun's old effort to have Jackson censured for the Florida campaign lay uncomfortably between them.

Alone and heartbroken at Rachel's death in December 1828, Jackson began to form his government. Wanting at least one friend from Tennessee in the Cabinet, he determined that John Eaton should be included. Jackson knew Peggy, too, but saw her as he saw Rachel—a lovely innocent. Which is why, when Eaton asked his patron if he dare marry her in the face of gossip and certain danger to the Presidency, Jackson responded, gossip be damned! "If you love the woman, and she will have you, marry her!"

This hardly left Eaton a choice. He married Margaret O'Neal Timberlake on January 1, 1829. Washington's reaction was briskly summed up by Senator

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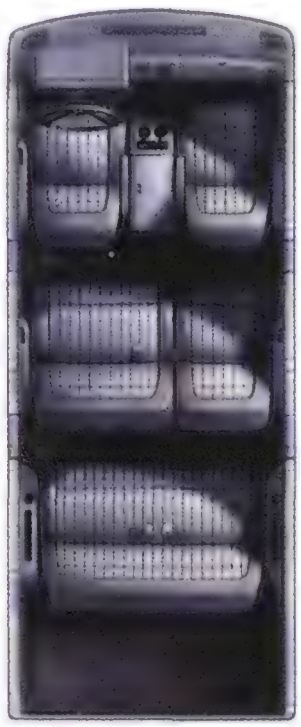

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Buckle up, America!

In romantic illustration, the gallant old President showers attention on Mrs. Eaton to demonstrate that he expects everyone else to pay the proper respect that is traditionally due the wife of a Cabinet member.

Louis McLane of Delaware: "Eaton has just married his mistress—and the mistress of eleven doz. others!" But when Eaton came under consideration for Secretary of War, laughter turned to horror. Peggy the rough-tongued barmaid was to become a Cabinet wife and stand close to the pinnacle of Washington society. Rebellion swept the social scene, and it struck nowhere more powerfully than in the outraged bosom of Vice President Calhoun's wife, Floride.

Those who already considered Eaton mediocre used the furor to urge the President to abandon his old friend. Jackson exploded—he knew all he needed to know about gossip! It was his nature to scent conspiracy in any opposition, and now he decided that all attempts to use Peggy to disqualify Eaton were really aimed at him—aimed to dictate the very composition of his first Administration! "Do you suppose," scoffed Jackson, "that I have been sent here by the people to consult the ladies of Washington as to the proper persons to compose my Cabinet?"

A fight over Peggy, whatever Floride's feelings, was the last thing Calhoun needed. He expected to follow Jackson into the White House and counted on the old man's endorsement for the succession. Enter now Martin Van Buren of New York, small, plump, highly politic, his manner smooth as glass, serving as Secretary of State. He was also a widower, a fact crucial to this story, and thus without a wife to object to a friendship with pretty Peggy. A bitter rivalry arose between Calhoun and Van Buren, with the friends of each aligned in hostile camps.

Once back from their honeymoon, the Eatons called, and Mrs. Calhoun received them stiffly but properly. The next morning Floride came to her husband's study and said she would not return the call. In polite society this would be a slight sure to have repercussions, but Floride said the situation with Mrs. Eaton was just too vulgar for a gentlewoman to tolerate.

Society is ordered by position and power, and in Washington both are political. Town and government

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In cartoon circulated during Jackson's second term, President and new Cabinet are imagined interviewing a famous ballerina, Celine Celeste, as a replacement for Mrs. Eaton. The scandal was gone but not forgotten.

were still small then, and the little groups at the top knew each other well, saw each other often and lived by an inviolate code. A diarist named Margaret Bayard Smith, herself a Washington socialite, left crisp pictures of mannered social patterns in which calls were to be made in order of rank and returned within a set period. Leaving cards was mandatory; future entertainment was an obligation due the caller. The form of things mattered profoundly; not even the wife of the President was exempt. Mrs. Monroe, a faded beauty from New York who felt Washington was too, too provincial, encountered much trouble because of her inattention to such details.

The right people doing the right things. That settled, we see a graceful, comfortable society cosseted by servants and slaves, lavish dinners starting early, evenings running late, 20 to 50 people gathered, some engrossed in chess, some playing high stakes whist, some singing around a piano or guitar or dancing, young people at a center table playing a rhyming game called "Insertion," servants refreshing glasses, and always, that stock-in-trade of Washington then and now, talk and talk and talk. It was so proper, so appropriate, so very right.

The insertion of Peggy Eaton into this structure—in which only a President's wife outranked a Cabinet wife—left everyone gasping. But another aspect made it all much worse and, indeed, frightening. The old guard, its members the cream of this society, was fading. The last heirs of the generation of the Founding Fathers, aristocrats who had invented American democracy for the common folk, had been swept away with the defeat of John Quincy Adams, himself the son of the second President. A new democratic era of the common man was coming out of the West in the person of Andrew Jackson. The past watched in horror as the present swept in on a tide of yellow brogans, homespun and chewing tobacco.

After his Inaugural, Jackson had led a crowd of 10,000 to the White House. "Such a cortege as followed him!" diarist Smith wailed. "Country men, farmers, gentlemen, mounted and dismounted, boys, women and children, black and white. . . ." They poured indoors, climbed through windows, stood with muddy boots on damask chairs for better views, bowled over waiters and their trays, crunched glass underfoot, spilled tubs of liquor that sheeted the floor. "*The Majesty of the People,*" Mrs. Smith said, "had disappeared [replaced by] a rabble, a mob . . . what a pity."

The use of "mob" was not accidental. Within living memory, French mobs had worked the guillotine; democracy was still considered a two-edged sword, beneficial but dangerous. That common Peggy Eaton should demand full honors from the aristocracy carried a deeper threat than mere social outrage. Mrs. Smith and Floride Calhoun and the others were taking positions on the barricades.

The first shots in the Petticoat War were fired at the Inaugural Ball. Peggy swept in, striking the crowd silent with her beauty and presence—while the Cabinet

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The Petticoat War and how it grew

wives and all who mattered cut her dead. The Cabinet officers returned the Eatons' calls—but came alone and did not offer their wives' cards. The implications were widely noted. Cabinet wives and the haut monde in general would not accept Peggy. The Eatons gave a party; people of any importance sent polite regrets. A different woman might have placed herself above (or below) the battle, but Peggy was enraged. Each rebuff hardened her determination to force society to accept her at her own valuation.

Next a Philadelphia preacher sent Jackson a letter charging Peggy with numerous sins, including traveling with Eaton long before they had married, and having a miscarriage a year after her late husband had departed for the fleet. The President was outraged. He threw himself into the Petticoat War with exactly the same vigor that he'd shown against the British. One can't escape the conclusion that in his heart he was fighting for his beloved Rachel's memory. In this context, it became necessary for Peggy to be seen to be as virtuous as a schoolgirl, something that required considerable imagination. His pen racing across the pages, Jackson scrawled a letter of refutation longer than his Inaugural Address.

He sent retainers out to gather countering evidence of Peggy's high reputation, which was easy to find in a town full of hopefuls for whom Presidential favor might lead to a lucrative office. Then a local pastor presented himself as the source of the miscarriage story, having had it from the attending doctor, now conveniently dead.

Beside himself, Jackson called, in September 1829, what must be the most unusual Cabinet meeting in American history—its purpose was to sit in judgment on the virtue of a fellow member's wife. He stunned Cabinet members when he declared that Peggy was "as chaste as a virgin!" It was ridiculous beyond description, and the international community watched in amused surprise: Peggy Eaton's virtue had become an affair of state.

Yet the comedy had serious overtones, for now the rivalry between Vice President Calhoun and Secretary of State Van Buren for a Presidential future was infected by what Van Buren began calling the "Eaton malaria." Widower Van Buren in his bachelor digs was free to shower attentions on Peggy and, doing so, he grew steadily closer to Jackson. As his own relations with the President cooled, Calhoun watched this budding relationship anxiously. Jackson already believed the attack on Peggy was aimed at him, and now he decided that all his troubles could be traced to the Cabinet clique supporting Calhoun's hopes.

In those days there were only six Cabinet members, and, with the exception of Van Buren, all were lackluster. Eaton, Van Buren and Postmaster General William Barry clearly were Jackson friends. Attorney General John Berrien, Navy Secretary John Branch and Treasury Secretary Samuel Ingham were Calhoun partisans. They feared Van Buren would receive Jackson's blessing for the succession to the Presidency that they coveted for their man. The President, meanwhile, took grim note of the fact that it was their wives who, with Floride, were leading the attack on Peggy. In fact, there was no conspiracy. The ladies of Washington were simply acting on their notions of propriety. But Floride Calhoun was their leader, and the fight was costing her husband dearly. Making it all the riskier for him were a couple of points he much wanted to keep quiet.

The South felt steadily more embattled

The first, of course, was that ancient condemnation of Jackson over Florida. The second went to the core of all that Jackson cared most about—the sanctity of the federal union that held the United States together as an indissoluble nation rather than a collection of consenting individual states. The differences between North and South—free against slave, the one increasingly industrial, the other resolutely agricultural—were already straining the national fabric. The South felt steadily more embattled, especially after 1828 when Northern votes in Congress imposed a tariff on imports that worked to Northern advantage at Southern expense.

The seeds of secession had long been sown in South Carolina and were further encouraged by the doctrine of nullification—an assertion that any state might nullify within its own borders any federal law, including the tariff, that it regarded as unjust. Though he was a Southerner, Jackson considered the Union sacred. What was known only to South Carolina insiders, however, was that Calhoun himself had authored the state's posi-

Mrs. Belsky's Advice To Her Math Students: "Go Fly A Tetrahedron."

Each spring, the math lessons Nancy Belsky's students have learned take to the air over Westmoreland, New Hampshire.

Nancy, a teacher at Westmoreland Elementary School, uses this innovative teaching technique to show her fifth through eighth grade students how math skills can be put to practical use.

Her fifth grade students build "sleds," a type of kite which is easily constructed and flown; the sixth graders go further, creating kites of various sizes with their own designs; the seventh graders use their knowledge of solid geometry to make cellular kites, building complex boxes and tetrahedrons; and the eighth graders are allowed to make any kite they can find or dream up.

It's a challenging task. The students are given limited materials to work with, so they have to be precise in their calculations as they go about building their kites. The older students apply the Pythagorean theorem to aid them in design, as well as other formulas to determine surface areas.

In the end, the sight of these high-flying kites is testimony to Nancy's teaching methods: "Simply giving students the tools of mathematics isn't enough. You have to show students how useful these tools are and how they can be applied in practical ways."

State Farm is honored to present Nancy with our Good Neighbor Award. We are also delighted to make a contribution of $5,000 to Westmoreland Elementary School in her name.

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The Good Neighbor Award was developed in cooperation with the National Council of Teachers of Mathematics (NCTM).

Unkindest cut for Jackson came when his lovely niece, Emily Donelson, quit as his White House hostess.

tion on nullification in a brilliant but—in 1829—anonymous tract entitled "Exposition and Protest." Since he could hardly run for President on a platform calling for dissolution of the Union, he needed to keep the authorship secret.

Meanwhile the Petticoat War flared to bizarre new heights. The Washington social season normally began each fall with a Presidential dinner for the Cabinet. In 1829 the party was a mortifying disaster. All of Jackson's considerable social charm failed. Cabinet wives sitting under duress with a scarlet woman maintained a glacial silence. Conversation limped, sputtered, died. The guests soon fled. Next in the official social round came Secretary of State Van Buren's dinner. He issued formal invitations, but only the men accepted.

Van Buren persuaded Baron Krudener, the Russian Minister and a bachelor, to give a party. While the Cabinet wives declined their invitations, others attended. Madame Huygens, wife of the Dutch Minister, kicked up an ugly fuss when she was seated near Peggy. Soon it was all over town that Cabinet wives and Madame Huygens would give a series of utterly brilliant parties—for the sole purpose of excluding the Eatons.

Everyone was out of control, most of all Jackson himself. He decided that the sharp remarks of the Dutch Minister's wife amounted to a national slight. The United States was offended. Only an apology the smooth Van Buren extracted from Madame Huygens defused an international incident.

Then Jackson summoned the three Cabinet members supporting Calhoun's Presidential hopes and read them a very odd state paper. Drawn up in his own hand in formal language, it said in essence: lay off Peggy or else! He must, as he put it, have harmony. The Attorney General of the United States, the Secretary of the Treasury and the Secretary of the Navy now assured the furious old man of their high regard for Peggy and for harmony, the latter doubtless true.

Their wives, however, following Floride Calhoun's lead, were unrelenting, Peggy equally so. Humiliation followed humiliation, until polite people talked of little else, and the city resembled armed camps for and against Peggy. Social life itself began to collapse. Even Jackson's beloved niece by marriage, Emily Donelson, who served as his official hostess, was drawn into the fray against Peggy, whom she considered inexpressibly vulgar. Jackson was aghast. This implied he couldn't even control his own household. He gave Emily an ultimatum. But he awed her no more than he awed the other ladies. She packed and returned to Tennessee, leaving him lonely and bereft.

It was not until the spring of 1831 that Jackson finally decided to settle matters by cleaning out the whole Cabinet. Eaton resigned, followed by Van Buren. Then the President called in the recalcitrant three and fired them. Only amiable Postmaster General Barry survived the purge. Nothing like this had ever happened in the nation's young history, and the nation was stunned. Was the government falling? Was revolution at hand? The press worked overtime, and everywhere men gathered, the ink on their newspapers still wet, to worry over what it all meant.

Jackson named a new Cabinet, government continued and national fears subsided. What was important, however, was that the Petticoat War underlay the final break between President Jackson and Vice President Calhoun—and *that* had considerable consequences.

Jackson demands an explanation

The rupture came because Jackson chose to force the issue just when he did. The precipitating event was an eyewitness account he received of Vice President Calhoun's old attack on him over the Florida campaign. He sent it on to the Vice President with a curt note demanding explanation. The break was inevitable, for what could Calhoun say?

In fact, though Calhoun couldn't know it, Jackson had long had intimations of the secret. Sam Houston, who had his own reasons for hating Calhoun and who would liberate Texas a few years later, had given Jackson strong inferential evidence. So Jackson, who already distrusted the Vice President, distrusted him even more when the latter's connection to nullification finally leaked out. But the President didn't force the

break over the secessionist threat to the sacred Union either; he expected to solve that on his own. Eventually he did just that—only for the time being, though, as events in the 1860s would tragically demonstrate. One conclusion is inescapable. Jackson had decided that Calhoun and his clique didn't just disagree on policy but had made themselves his personal enemies. The Petticoat War was simply the decisive event.

What answer could Calhoun make to his President? There were no good options, yet he chose the worst possible response. He *published* his ancient justification for demanding Jackson's censure in a widely distributed pamphlet of 50 pages and then recapped the details of the Eaton affair. It was as if a modern Vice President bought an hour of prime time on television not only to denounce the President on political grounds but to air unsavory private details. This played into Jackson's hands. His cutting Calhoun off from the Presidency and firing the Cabinet could now be seen as a matter of honor and high policy, not just a weak-minded sop to voluptuous Peggy Eaton.

Van Buren was the immediate beneficiary. During Jackson's second term he replaced Calhoun as Vice President, and in 1837 he succeeded Jackson to the Presidency, though he lasted only one term. But that's another story. Eaton was eventually made Minister to Spain, where Peggy became the toast of Madrid, Spanish society knowing little and caring less about her past. In 1840, the Eatons returned to Washington. After Eaton died, Peggy, a rich and handsome widow in her 60s, married an Italian dancing master 40 years her junior who departed with her money and—worse—her granddaughter. Her last solace was settling old scores in an angry autobiography.

South Carolina returned former Vice President Calhoun to the Senate. Now acknowledged as an advocate of nullification, and deeply embittered, he emerged year by year as the secessionist movement's guiding spirit. His chance to be President was gone forever. Though for years he went on yearning for and maneuvering toward the office, he did more than any other individual to bring the South to the fever pitch of civil war.

If not for Peggy, what might have been

What-if questions about history are risky. The course of human events turns on countless, often tiny, imponderables. But one can at least ask what might have been if Calhoun and Jackson had not broken with each other. Calhoun was much better equipped for the Presidency than was Van Buren. In the White House, might he not have become a healer rather than a destroyer? His own interests—on which he always kept a firm eye—would then have dictated moving North toward South, South toward North. In 1836, when he would most likely have taken office, the differences between the two regions were not irreconcilable. Freedom versus slavery already was the issue, but the abolitionist movement in the North was just beginning to take hold. Many Southerners, especially in Virginia and Kentucky, still expected (and wanted) slavery to end. Some were seeking equitable means for freeing slaves. Over the next quarter-century the South would harden until such thoughts would become treasonous, but if a Southern President and healer had been on hand, those early seeds might possibly have borne more useful fruit.

At the time, at least, there was little doubt of the scandal's significance. One of many examples: a Southerner writing after the Civil War summed it all up by entitling his article, "Peggy O'Neal: or the Doom of the Republic."

If she was a fallen woman, Mrs. Eaton landed in a soft spot—as much admired wife of Ambassador to Spain.

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Rebecca Castle paints over white crosswalk stripes to "age" intersection for 1955-based film *School Ties.*

Period cars help date the luncheonette in Lowell, Massachusetts, where *School Ties* characters hang out.

By Doug Stewart

Once they pay $7, moviegoers want a believable world

And whether it's a 1950s street corner, an old jail in Texas or the entrance to hell, the production designer can create the right 'look'

Standing on a Lowell, Massachusetts, street corner early one morning, Jeannine Oppewall eyes the pavement of the busy downtown intersection in front of her with a disapproving glare. "Get rid of those double yellow lines," she tells a lieutenant. "And can you do something about these crosswalks? There are just too many stripes around here."

Oppewall is the production designer of a movie-in-the-making from Paramount called *School Ties.* In a film crew, production designers make decisions about everything from the color scheme of the various wallpapers (no, movies almost never settle for whatever paper a wall already has) to the choice of mountains seen in the background of a happy ending. *School Ties* is a prep school story set in 1955, and Oppewall's task of the moment is to "period" the streets that will appear in a scene to be shot here in a few days. That double yellow lines didn't become commonplace until the 1960s is a bit of history that Oppewall knows the way other people know Columbus set sail in 1492.

For the rest of the day, a squad of young "scenic artists," in Hollywood lingo, shake their six-inch brushes in the air, spattering the asphalt with light gray paint. For the painters it's a tedious process, but at least they're in show business. Passing motorists watch sus-

Production designers spend months checking out things like how lampposts looked in the mid-1950s.

piciously as they inch around the police roadblock. "One man drove by and said, 'Did you go to college to do that?' " says Rebecca Castle. "I said, 'Actually, I did. Four years.' He said, 'Think what you could be doing if you'd gone four more years.' "

The extremes to which a film company will go to achieve a desired visual effect, however subtle, may strike ordinary citizens as excessive, if not laughable. But as feature-film budgets have soared in the past ten years (the industry average in 1991: $26 million per film, or nearly one-seventh the annual budget of the National Endowment for the Arts), the filmmakers' attention to creating believable worlds has grown accordingly. And moviegoers now demand it: if they're paying $7 to see a movie on the big screen, they want to know they're not watching a TV sitcom. In Hollywood, as a result, no one's star has risen faster in the past few years than that of the production designer.

More powerful than a prop master, more artistic than a special-effects supervisor, more far-reaching than a theatrical set designer, the production designer is the person responsible for giving a film its distinctive overall "look"—the comic-book colors of *Dick Tracy*, the claustrophobic, duct-filled spaces of *Brazil*, the dreamy, sun-drenched Beverly Hills and bleak, windswept Las Vegas of *Bugsy*. According to Bart Mills in *American Film* magazine: "The films that linger longest in our minds these days take place in enclosed worlds that are carefully designed right down to the last mote of dust. The setting *is* the film."

While production design remains little known to the public, a handful of practitioners have earned star

Photographs by Richard Howard and John Livzey

status within the film industry. One is Dean Tavoularis, whose shadowy, opulent interiors in the three *Godfather* films have probably shaped forever our image of how mobsters live (despite news accounts to the contrary). Another is Ferdinando Scarfiotti, who brought to the screen a stylish, painterly richness in Bernardo Bertolucci's *The Conformist, Last Tango in Paris* and *The Last Emperor.* Twin brothers Richard and Paul Sylbert, both Oscar-winning designers, are known for their clever approaches to tying together a film's visual elements—Richard, for example, reported that he based the color scheme of the gangsters' hideout in *Dick Tracy* (red, white and black) on the Nazi flag.

Among production designers, George Jenkins, at 83, is unquestionably the reigning elder. As a rule, film designers, unlike their counterparts in the theater, hate surface fakery, and Jenkins set a new standard in obsessive verisimilitude when he created the sets for *All the President's Men* in 1975. To make sure the desktop clutter in the picture's make-believe newsroom looked authentic, Jenkins got permission from the *Washington Post*'s managing editor, Howard Simons, to place empty cardboard boxes next to every desk in the *Post*'s real-life newsroom. Then reporters were asked to place their discarded papers, magazines and letters in the cartons. Three months later, Jenkins had the entire accumulation, 75 boxes' worth, shipped to the film's Los Angeles sound stage for desktop distribution there. Jenkins, still active today, explains that he had studied each of the 350 desktops in the *Post*'s newsroom and realized that each had its own personality. "There was a cooking editor, a religion editor, a medical editor," he says, "and each of their desktops had a unique grouping of papers and reference books." Having seen the real thing, Jenkins couldn't abide a generic-looking fake. His perfectionism won him an Oscar.

Using and reusing back-lot sets

Back in the 1930s and '40s, the title "production designer" scarcely existed. The people who supervised drafting and set-building were called art directors. In an era when a major studio might release a movie a week, they were largely low-status production workers who hewed carefully to a house style (the Paramount look was sleek elegance, MGM's was sumptuous and overstuffed, Universal's tended toward the noir). Well into the '60s, each studio used and reused its own back-lot sets for everything from Parisian street scenes to Western showdowns—even seagoing dramas. The cast of *Ship of Fools* never went anywhere near a ship.

By contrast, the stark, all-encompassing mise-en-scène of movies like Elia Kazan's *Baby Doll,* in 1956, offered viewers a refreshing blast of realism. Art-directed by the Sylberts, *Baby Doll* was partly filmed

Veteran production designer Paul Sylbert relaxes in front of abandoned building he used in the movie *Rush.*

In grimly realistic jail cell set, Sylbert applied thick build-up of paint—and graffiti—suggesting years of use.

Rush costar Jennifer Jason Leigh visits a real saloon that required only minor changes to work in the movie.

Built in a printing plant, *Rush* bathroom set features seedy wallpaper, and tubing from water heater to tub.

on location in the Faulkneresque backwater of Benoit, Mississippi. For Karl Malden and Carroll Baker's unhappy home, the brothers settled on a dilapidated mansion near the Mississippi River, but the interior scenes were filmed on sets built in a studio in Brooklyn, New York. The interiors of those sets were prepared by prying off chunks of plaster and driving wedges into the walls to propagate cracks.

Paul Sylbert, like Richard, has continued to practice his painstaking craft in movies large and small. His labors helped audiences suspend disbelief as they gazed in the darkness at *One Flew Over the Cuckoo's Nest*, *Kramer vs. Kramer* and *Heaven Can Wait*, for which he won an Oscar. His work on *Prince of Tides* earned him an Oscar nomination this year. Now 64, Sylbert recently spent six months in Houston choosing and modifying locations and overseeing set construction for *Rush*. The Zanuck/MGM-Pathe film, set in 1975, is a dark tale about a pair of young narcotics cops (played by Jason Patric and Jennifer Jason Leigh) who get into trouble. During a final scouting trip a few weeks before filming began, Sylbert summed up the story: "It's a descent into hell." As the designer, he said, his job was "to create hell metaphorically."

Wanted: a fundamental seediness

The movie's shooting budget was low by Hollywood standards. To save money, the filmmakers chose to shoot most of it on location rather than to build sets. Altogether, filming would take place in 36 carefully selected spots in and around Houston: bars, shacks, dance halls, self-service laundries, trailer parks. Most of the locations were chosen for a certain fundamental seediness that no L.A. back lot could ever simulate. But picking locations, however right they might seem at first glance, was only the beginning. The locales often had to be redecorated, refurnished, repapered, repainted and otherwise reworked. Realism in the film business involves a lot more than finding something real and pointing a camera at it.

One stop on the scouting trip was a forlorn little trailer-size house on the outskirts of town, a setting that had not even been in the script until Sylbert lobbied the director, Lili Fini Zanuck, to work it into the story. It would be home to a weasely small-time drug dealer and police informant. The structure wasn't much to look at. Window screens had popped out and lay rusting on the ground. The mailbox by the chain link fence was bashed in. The street in front was potholed, and ditches on either side were flooded. "This is a great street," said Sylbert, a connoisseur of streets.

The house was the last on the block. Directly beyond it, across a high barbwire fence, sprawled a petroleum plant belching smoke and steam. Thou-

Dilapidated Down-Town Grill appears only slightly improved (opposite) after Sylbert repaired canopy and sharpened colors for *Rush*. Located near Houston on a street lined with taverns, bar retains scrappy look.

sands of lights covered its looming superstructure like Christmas ornaments. Occasional tongues of flame roared into the sky from towering gas vents. "There's nothing that looks more like the mouth of hell than a cracking plant when the gas flames are shooting up into the air at night!" Sylbert shouted as he watched the display. "Those are the bowels of the Earth that stuff is coming up out of. It even *smells* like brimstone!" Smells wouldn't record on film, of course, but Sylbert was going for authenticity all the way.

Indeed, few people have ever researched the look and feel of hell with such loving attention to detail. The film company's temporary production office occupied part of an abandoned printing plant. There, stacked next to Sylbert's drafting table, sat purple and pink wallpaper samples of a slimy iridescence that said "1970s" with mute eloquence. Sylbert's wife and production assistant, Jenny, had found the rolls by poking around in the back rooms of local wallpaper warehouses. Pinned to the wall above the samples were color photocopies of an article from *Discothèque* magazine. Sylbert planned to consult the pictures to catch the proper nuance of dress and decor for the film's disco scene. "Discothèques are their own hell," he said. "You look at one and you immediately say, Of course, that's a circle of hell."

Talkative, opinionated and intellectual, Sylbert reads things like Nietzsche and the *New York Review of Books*, and has always preferred New York to Los Angeles. With his long sweep of graying hair and expressive eyebrows, he looks like central casting's idea of a symphony conductor. Sylbert was schooled as a painter, and he approaches his work the way an artist approaches a blank canvas. "This is my palette!" he exclaimed as he strolled through the huge skylighted plant where welders, painters and carpenters were building *Rush*'s breakaway doors and phony facades. "My medium is wood and steel and glue and nails. It's the same medium an architect uses, except I don't have to worry about building codes."

Sylbert earned a reputation as a meticulous stage-set designer before moving to the West Coast to design Hollywood films. He had his first encounter with the studio system's mass-production techniques in the mid-'50s. "We were building a set of an apartment interior, and I had drawn cracks on the walls in my sketches," he said. "When I got into the studio, I saw a guy up on a ladder holding a palette. I said, 'Who's that?' I was told, 'Oh, he's our crack painter.' He was even wearing a little beret!" Sylbert told the man to "get the hell down." Not only does Sylbert like his wall cracks to be genuine, but he will often see to it that some cracks are plastered over, and the plaster, in turn, coated with five or six coats of paint. Every space has its own history, he likes to say. If a space is too new to have one, he gives it one.

Moviegoers would never guess that the Texas jail in *Rush* hadn't been occupied by generations of dirty-fingered, graffiti-scratching inmates. The filmmakers had tried to find a real-life jail, but none was suitable—jail cells were mostly small and, on weekends in the Houston area, mostly occupied—so the crew was now building a fake jail in the middle of the plant floor. Painters were laying on coats of beige mixed with

sawdust and roofing compound to turn thin sheets of wood into cinder blocks. The jail bars were plastic pipes, and the welds were smidgens of putty, but even up close the effect was as convincing as Alcatraz. Inspecting the painters' progress, Sylbert suggested to paint chief Rod Nunnally that his crew be a little sloppier: "I want to see more dripping paint in the corners." Generations of prisoners were supposed to have painted those cells, never with pride. Sylbert knew the look he wanted—he'd studied one nearby jail like an archaeologist. "They had to think we were pretty weird," said Nunnally of the guards. "Paul was down on all fours staring at the concrete." Sylbert took so many snapshots of the jail's layout and accouterments, even closeups of the locks, that the sheriff's office insisted he destroy the pictures when he was through with them.

A month later, the "jail" was finished and ready for filming. The result was spectacular. Rust seemed to be showing through the steel plates that divided the cells, though it was all just paint on Masonite. "Like our rivets?" asked Sylbert. "They're half-marbles." Two thousand were glued to the ceiling alone. Graffiti had been scratched into the walls (DOPE KILLS, DEATH BEFORE DISCO), then painted over till barely readable. The locks all worked. The wear on either side of the food-tray slots looked years old. A sheriff's officer dropped by and was so impressed that he asked if he might use the holding cell here for overflow.

In one of the film's most harrowing scenes, the rookie narcotics agent, played by Jennifer Jason Leigh, buys some locally brewed pills and is forced to swallow some forthwith to calm the seller's suspicions. The real-life setting for this scene was an area approximately 30 miles west of Houston known as Mud Alley. The neighborhood was the last word in rundown. On one side of the main street was a lineup of one-story shacks, almost every one of them a bar. The only two-story building appeared to predate the Alamo. An occasional Southern Pacific freight train rumbled down the street's median strip. "After I saw this place, I knew I had to work it into the picture," Sylbert said on the day before filming began here. Having coaxed the director into situating the dealer's drug "kitchen" here rather than out in the countryside, he was able to use the street largely as he found it (aside from commissioning a new neon bar sign, for which he specified that one letter be wired to flicker).

Inside a boarded-up corner shop where the drug buy would be shot, set decorator Phil Leonard was assem-

Doug Stewart, a frequent contributor, loves to watch movies, but after completing this article he suspects he would rather not work on one.

bling a methamphetamine lab. Leonard had already studied a 30-minute instructional video from the California Attorney General's office, *Clandestine Drug Labs: Kitchens of Death*, in order to learn what kind of glassware and tubing was called for and what color the various liquids should be. He and his assistants unpacked oversize beakers and jars from boxes and lined them up on shelves.

Leonard set to work filling Pyrex brownie pans with a powder that was supposed to be unrefined methamphetamine. "It's kitty litter, actually," he said. An assistant, Francine Lauzon, agreed that this is a strange line of work. "I love the looks you get at Walgreen's when you buy four huge jars of vegetable laxative, four large bottles of boric acid, four bottles of peroxide and four bottles of Easter egg dye," she said as she patiently scraped labels off brand-new jars. "You know how people stare at you, then look away quick?"

Kibitzer in Lowell watches as dead branches are hung from live trees to help suggest a town in decline—the kind of place teenagers in *School Ties* would leave.

Leonard worked a few years ago on the cops-and-terrorists movie *Die Hard*. He was responsible for dressing a set that represented the debris left over when the top floors of a skyscraper blew up. "I bought 17 tractor-trailer loads of junk and spread it all out on the ground," he said. "We had flames and smoke coming out of some of it. There was a crashed helicopter on top. A guy came out of an office building and said, 'Tell me this isn't real!' "

Some production designs aren't supposed to be real, of course. For so-called event movies like *Hook* and *Dick Tracy*, heart-stopping visual effects are what pull people into the theaters. And clever underlying visual themes can make a funny movie funnier, a scary movie scarier. In the 1986 black comedy *Ruthless People*, Bette Midler's nouveau riche home is stuffed with dangerous-looking ultramodern furniture. Production designer Lilly Kilvert wanted the house to hurt. "There was no place for her husband, Danny DeVito, to sit down," she points out. "The furniture isn't what made him want to kill her, but it drove him in that direction." Looking for a generic suburb into which *Edward Scissorhands*' oddball hero would try to fit, production designer Bo Welch chose a neighborhood of bland tract homes in Florida, then had a crew make all the windows smaller. "I wanted the houses less friendly, more paranoid-looking," Welch says.

Substituting the past for the present

Despite the obvious extremes of such make-overs, most designers say realistic movies pose the greatest challenges. The real world, after all, is something moviegoers know intimately. If you get something wrong, they'll spot it. And among realistic movies, the most demanding on designers are the period films, and not just because of all the old-fashioned bric-a-brac that has to be assembled. "On a period movie," says *School Ties* designer Jeannine Oppewall, "you often spend more of your time, money and energy erasing the present than you do putting in the past."

On location in Massachusetts, Oppewall's job is to see to it that an existing coffeeshop and its environs, one of the busiest intersections in Lowell, travel back in time to 1955. A crew of city workers, for a hefty fee, has just uprooted a row of nonperiod parking meters. Now, for $5,000 more, a Massachusetts Electric work crew with a cherry picker is removing a set of modern cobra-head streetlights. Oppewall is now having the poles replaced with green fluted lampposts made of fiberglass. "We hate cobra heads," she says. "We hate them possibly more than we hate vinyl siding. And we

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No detail is too small for the set designer, whether it involves replacing modern lampposts with bogus older ones (top left), changing a lighting fixture (top right) or using an old doorway to conceal a newer one (bottom left). Jeannine Oppewall (bottom right) barks orders while aides add character to 1928 truck.

really hate vinyl siding. If I could get hold of the guy who invented vinyl siding, I'd murder him."

School Ties is a coming-of-age drama (directed by Bob Mandel) about a boy from a Jewish working-class family in Pennsylvania who enrolls at a Waspy New England boarding school. Most of the scenes are being shot at a well-appointed prep school nearby. Lowell, however, is substituting for rust-belt Pennsylvania, and Oppewall wants the visual contrast to be sharp. This isn't the nostalgic, candy-coated 1955 of *Happy Days*. "In the Pennsylvania scenes, there are supposed to be dark, leaden skies, dying trees, browns, dirty pinks, things feeling musty, damp and claustrophobic. It should look like a good place to leave."

Oppewall, whose earlier films include *Tender Mercies* and *Ironweed*, has the good looks herself of a movie actor, but her emphatic diction and no-nonsense manner are those of a rather strict schoolteacher. Or perhaps of a general on maneuvers, for under her esthetic command is an army of specialists: art director, set designer, prop master, wardrobe supervisor, painters, construction coordinator and a dozen or so carpenters. On hand whenever the cameras roll are a special-effects supervisor to plunk dry ice into coffee grown too tepid to steam, a set decorator to string up clotheslines of period laundry, and a greensman whose crew can "plant" half a dozen 15-foot evergreens to hide errantly parked late-model cars in five minutes flat.

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Set decorator arranges period fruit cans next to old soda ad displayed on counter of luncheonette in Lowell.

An alley around the corner from the Lowell coffeeshop will be the site of a fistfight between the movie's hero and some local juvenile delinquents. To hide the siding on one of the buildings facing the alley, carpenters have built a wooden frame around it and are now wrapping the frame in green tar paper. On a tall stepladder behind them, painter Bill Riley is spray-painting the foliage of a large green tree with gray-brown paint. (The paint is a milk-based mixture that will wash off in the first rain, according to Riley.) As actors in motorcycle jackets and blue jeans with the cuffs folded up rehearse their fight scene at the top of the alley, a tow truck deposits a bit of set dressing behind them—the rusted hulk of a 1928 delivery truck. Oppewall wanders back and squints at it with a critical eye, then orders a pair of crewmembers to soften it up with a crowbar and a power saw. Only ten minutes earlier, the wife of the truck's owner had dropped by and announced, "It's going to be a beauty when it's restored."

It is not unusual for transportation coordinator Gino Lucci, the man responsible for procuring the film's 240 period cars, to carry a fat roll of cash that he can use to make a purchase on the spot. Lucci's wad came in handy when he was chief car wrangler for Martin Scorcese's mob film *Goodfellas*. Actor Robert De Niro was told by the real-life mobster he was portraying that an accomplice had owned a hot-pink 1979 Cadillac Coupe de Ville convertible. Lucci was ordered to deliver an identical car. He tried used car dealers, want ads, fellow car wranglers, without success. On a Saturday afternoon, Lucci was asked to deliver a hardtop version by 6 o'clock Monday morning. "Late Sunday, I was in Brooklyn, a terrible neighborhood, and I saw the car I needed," Lucci says. "I drove up to the guy and said, 'I want to buy the car—*now!*' I purchased it on the spot for $2,500." All that remained was for the Caddy to be painted hot pink.

The production designer for *Goodfellas* was Kristi Zea. As particular as she had been, Zea herself admits that sometimes she didn't go far enough. Toward the end of the film, the main character and his wife are awash in money from selling cocaine. As the film crew was about to shoot a bedroom scene, the actress playing the wife noticed that the jewelry piled on her dresser was fake. "She wouldn't play the scene," Zea recalls, still amazed. "She insisted that real jewelry was integral to her performance." Shooting delays are anathema when a cast and film crew typically cost $10,000 an hour. Zea hurtled out to the nearest jewelry store. After placing a frantic call to have her credit card limit boosted just this once, Zea scooped up $27,000 worth of gold, diamonds and pearls and raced back to the set. (She returned the rented jewelry three hours later at a cost of $500.)

According to the window-shrinking Bo Welch, all of this is not really as extravagant as it seems. To be sure, Welch isn't an impartial observer. He's overseeing the sets of *Batman Returns*, for which five enormous sound stages in Los Angeles are being kept at 40 degrees F, night and day, during shooting. "The story takes place in winter," Welch explains. "We need to be able to see the actors' breath and to have them actually *feel* cold." Also, he reports, the refrigerated air keeps the flocks of live penguins happier. The electric bill alone will easily surpass a million dollars.

"Now some people are going to say it's unconscionable to spend that kind of money on air-conditioning," Welch says, "but compare this to what *real* construction costs—highway building, for example." (For the record, a million dollars buys about a truck-length of new Interstate highway.) "Compared to that, this is just a drop in the bucket." Besides, when people find a movie entertaining, he observes, they don't worry about what the penguins must have cost.

Extras lounge next to grocery side of luncheonette. Designer Oppewall added awning and signs in window.

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Coca-Cola

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APPLES 12¢
lb.

PEARS
BU. 21¢
LB.

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The Nelsons are pictured with a [illegible] ©1992 Saturn Corporation.

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Buckle up for the ride of your life

There's no stretch of highway as wild as India's Grand Trunk Road; photographer Raghubir Singh takes us along risk-free

Driving—or even walking alongside—the Grand Trunk Road, which cuts across northern India from Pakistan to the mouths of the Ganges, is not for the faint of heart. Imagine a macadam track from San Francisco to Wichita, barely two lanes wide with no markings on most stretches, serving the following traffic: ten-ton trucks constantly jockeying to pass one another, buses with riders hanging on for their lives, big cars called Ambassadors that lumber along like tanks, camel trains, oxcarts, cycle rickshas, wandering cows, motor scooters, bicycles and pedestrians, including the occasional itinerant with a dancing bear on a leash. By day, there's the constant threat of collision; by night, armed robbers scatter nails or block the road with rocks.

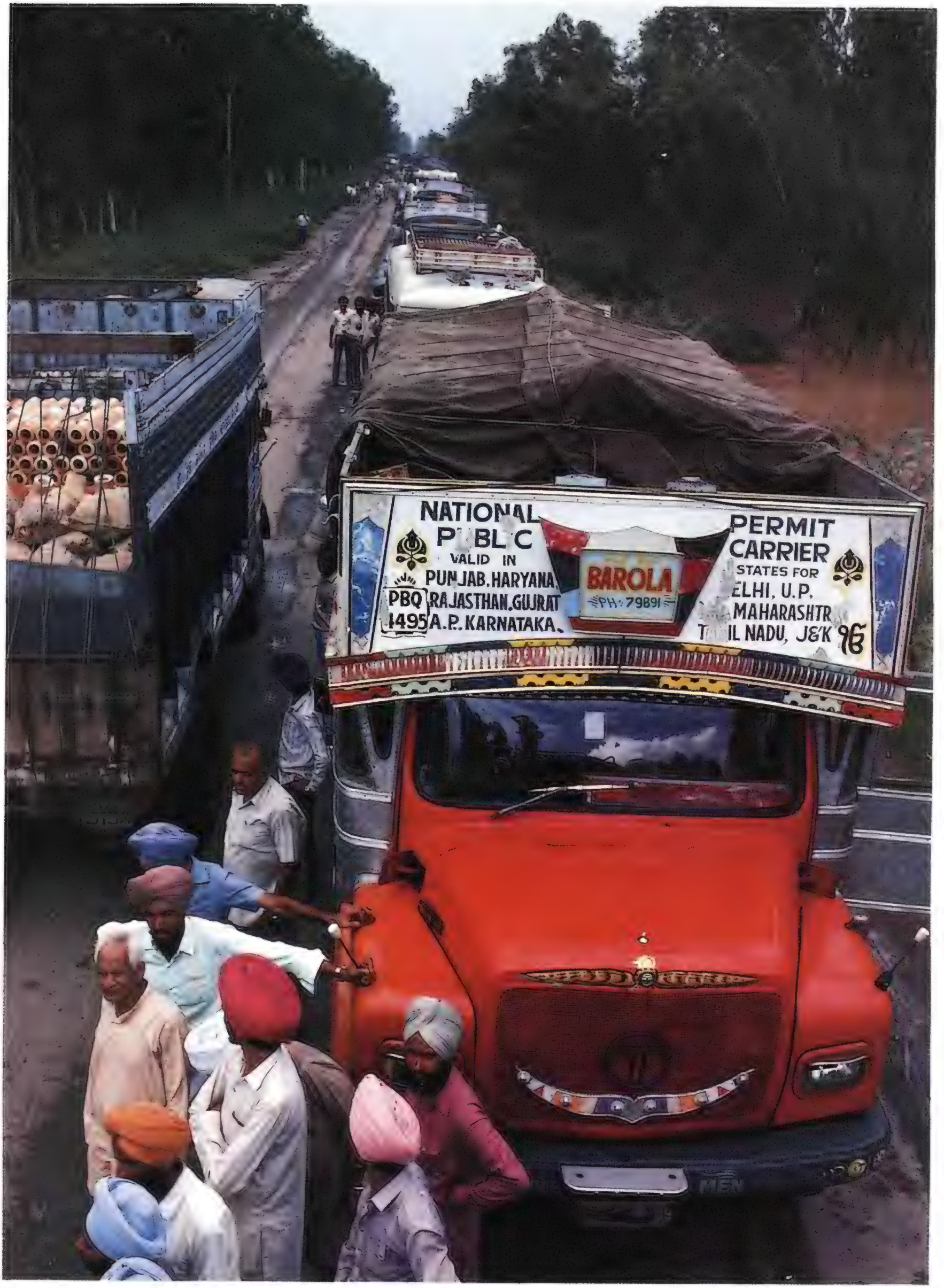
The few foreigners who experience the GT often do so from the backseat of a wildly weaving Ambassador, but the driver can't hear their gasps over the honking. Driving technique, says the Lonely Planet guidebook to India, is "to put your hand firmly on the horn, close your eyes and plough through regardless."

Although trucks dominate the GT route today, they're recent arrivals. Aryan invaders came this way when they poured into India from the northwest around 1500 B.C. Serious road building was begun by the ruler Chandragupta Maurya only a couple of centuries after the Buddha died in 483 B.C. During the raj, this was the path of intrigue, the road that Kipling's Kim, shut up in the sahibs' school, longed for, with its "caress of soft mud squishing up between the toes," and its forbidden greasy sweetmeats and crude bidi cigarettes. The first chance he got, he left behind his new, initialed bullock-trunk ("Sahibs are always tied to their baggage," he said), changed his clothes and blackened his face, and went back on the road.

Not surprisingly, northern India's key historical and religious sites are located along this corridor. Most of the truckers, being Sikhs, are intimately familiar with the Golden Temple in Amritsar, near the Pakistani border. But they barrel past the confluence of the Ganges and Yamuna rivers, a holy site for Hindus, who gather there by the millions every 12 years for the Kumbh Mela festival. They don't stop at Bodh Gaya, either. Here, where the Buddha achieved enlightenment, saffron-robed monks quietly tend to the oil lamps in the monasteries, as they were doing when the fifth-century Chinese pilgrim Faxian showed up in search of sutras after hitching across Central Asia and down the route.

A modern-day pilgrim with a camera, Raghubir Singh has traveled the GT many times. As his photographs show, the ghosts live on, rubbing shoulders with the newcomers: the oxcart driver's deep-throated command of "hut! hut!"—heard for millennia—mingles with the sound of horns. Today, the Grand Trunk Road is like a whitewater rapid flowing in two directions at the same time, combined with unpredictable bungee-jumps into the past. "Don't Create Chaos," reads a roadside sign outside Calcutta, near the end of the run. It's just another cosmic joke, compliments of India.

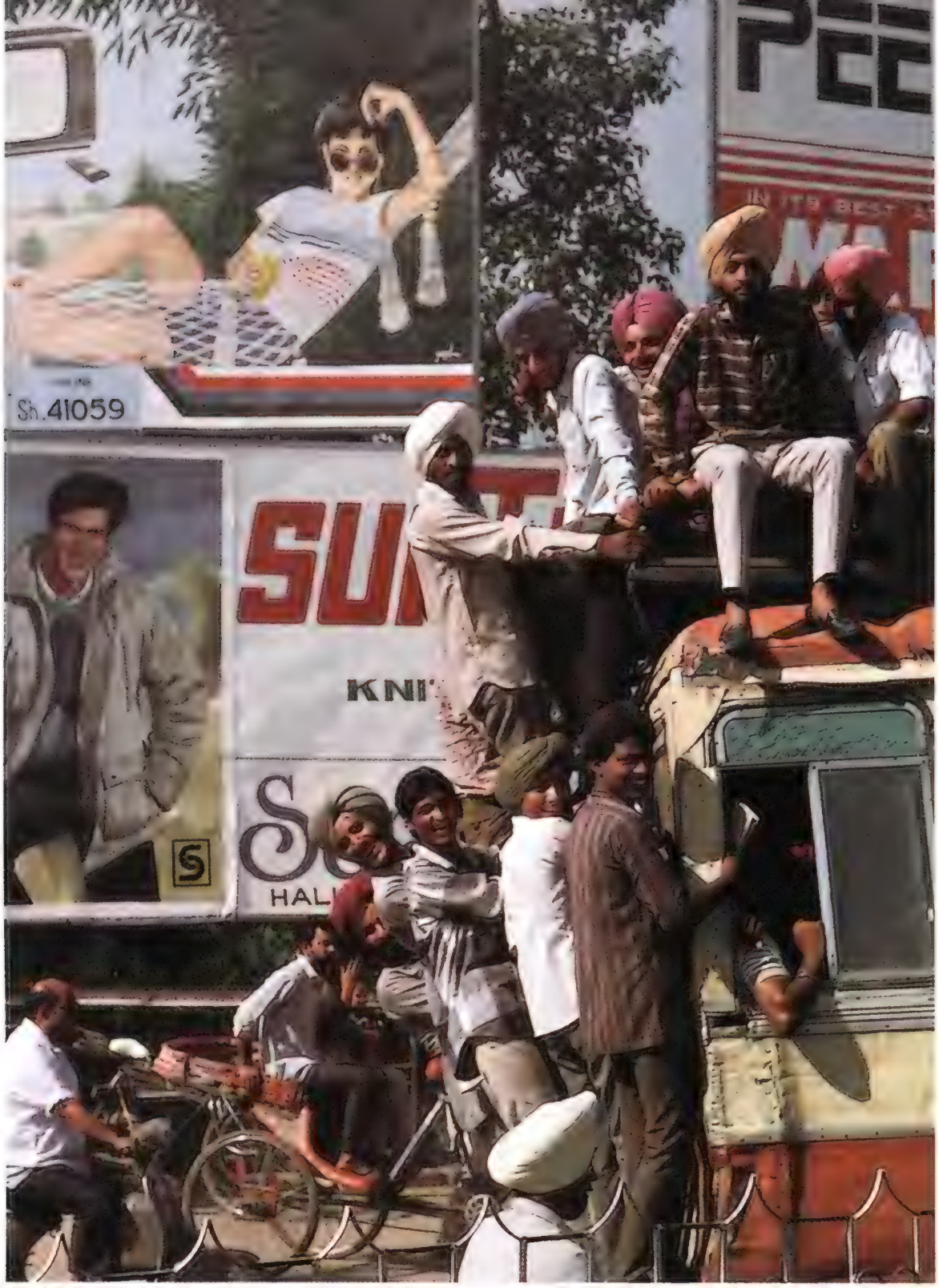
Constance Bond



Opposite: Flanked by drying carpets outside weaving factory in Bihar, camels hug the shoulder of the road.

Lined up nose-to-tail, trucks and buses (above) await go-ahead in an hours-long backup caused by floods.

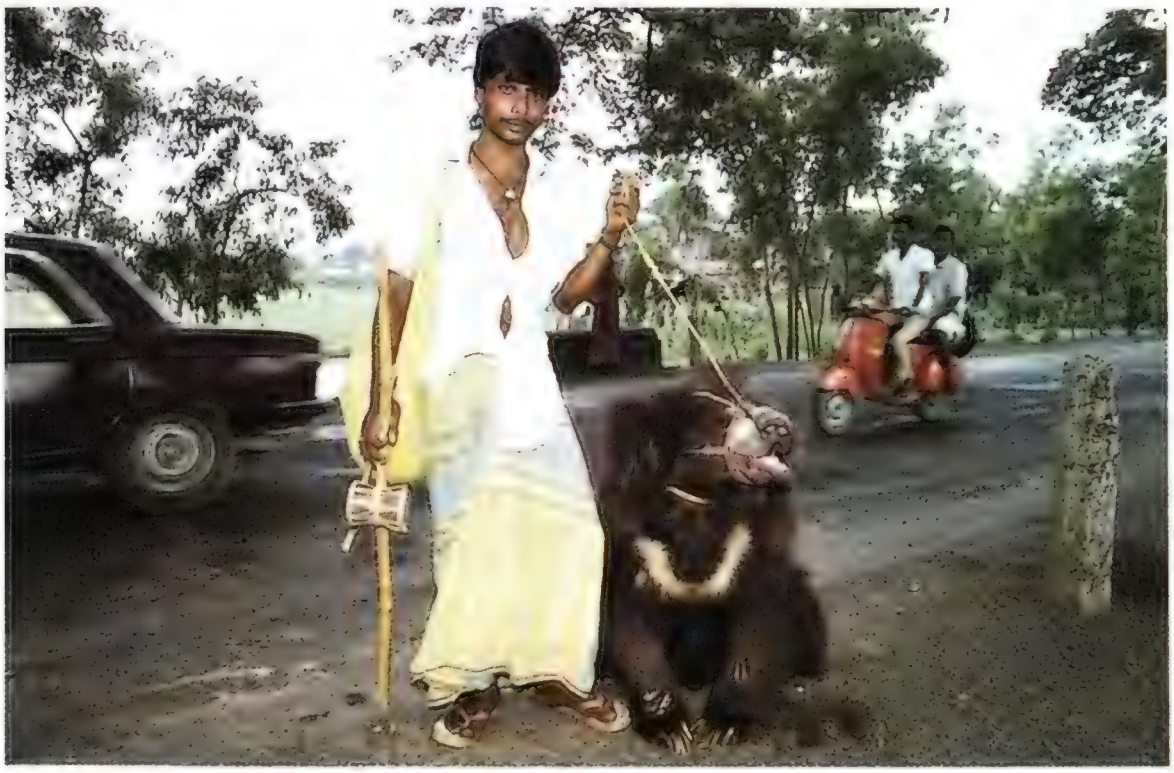
Photographs by Raghubir Singh



As it passes through Amritsar and other cities, the GT hosts billboards and loaded-down local buses.

A musical duo moves on into Bihar, in the east.

With dancing bear and drum for marking rhythm, a roving performer works the route's towns and villages.



Laden with pressed-leaf bowls that are used throughout rural India, an oxcart trundles past one of the many overturned trucks that pushed the envelope too far.

Stringed instruments are called sarangis.

"Ninety-seven kilometers to Fatehpur," reads distance marker that doubles as a backrest for a goatherd.

India-built Suzuki car, less rugged than the heavier Ambassador, gets its tires checked outside Ludhiana. In the background is a Sikh *gurdwara*, or gathering place, one of many religious sites along the road.

Clad in dark blue, a member of the Nihang Sikh cult guides his horsecart past fields in the Punjab planted with rice, wheat and corn. Once warriors and protectors of Sikhism, these nomadic horsemen camp in tents.

In Govindgarh, choking dust hangs over a stretch in perpetual state of repair. Panoply of vehicles—trucks, jeeps, buses, cycle rickshas, scooters, bikes—is typical of the traffic. Sacred cows also wander along the road.

Below the long span that carries the Grand Trunk Road over the Ganges, the Kumbh Mela festival attracts millions of Hindus.

In Haryana during monsoon season, a makeshift awning diverts raindrops for a scooter driver; such scooters are now rapidly replacing bicycles.

At the Pakistani border, Indian guards await the evening ceremony to lower flags; ritual, held each day at sunset, brings all GT traffic to a halt.

Taking advantage of roadside pools that form during monsoon, boys in West Bengal catch tiny fish in box traps made of cane.

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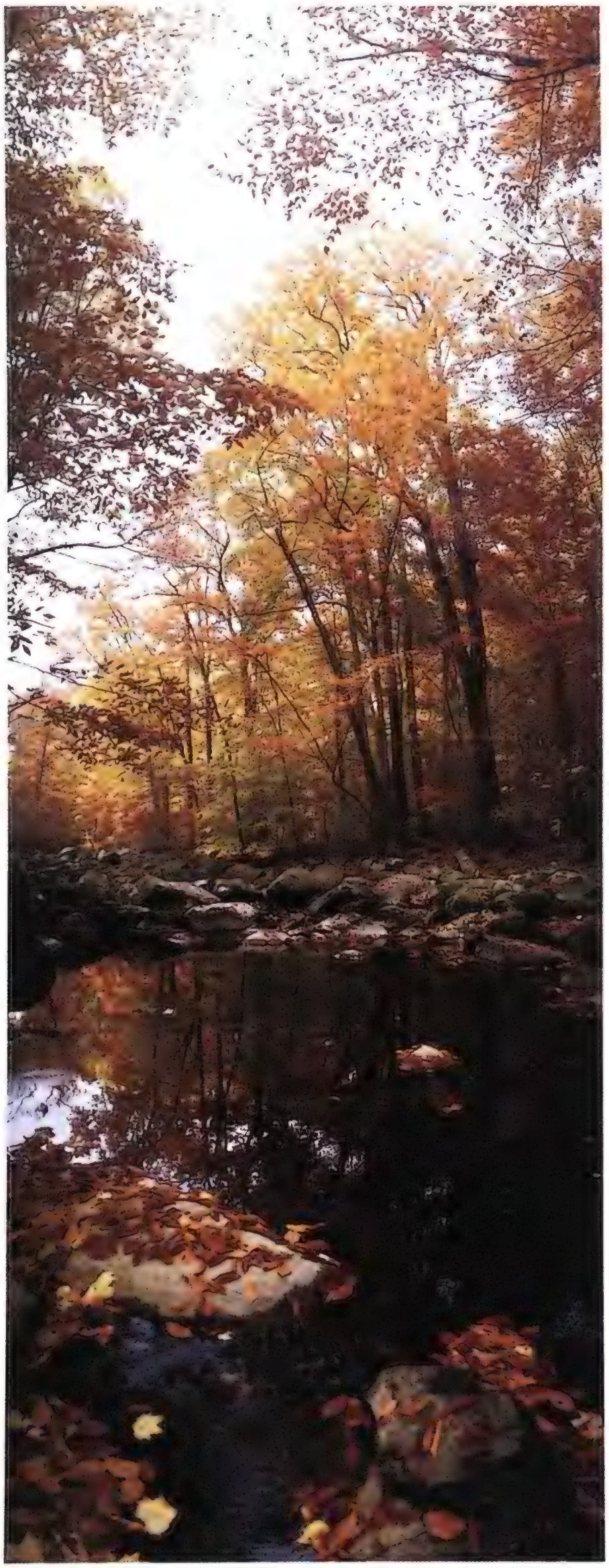


By Henry Wiencek

Laying out the idyllic life in a latter-day Arden

Frank Stephens saw a vision of Utopia in the single-tax theory of Henry George and set out to make it come true in rural Delaware

The name rings like a merry little bell for all who know their Shakespeare—"Arden." It was the name of the enchanted forest in *As You Like It*—the forest that resounded with music and song, the murmurs of lovers and the jests of Touchstone—where a jolly band of young gentlemen went willingly into exile with the banished duke, there to "fleet the time carelessly, as they did in the golden world." It is a joyous spot on literature's map, and in the early 1900s a merry band of American dreamers put an Arden on the map of Delaware. It is there today, tucked among the suburbs of Wilmington, an oasis of idiosyncrasy.

Its citizens have been people of ideas—poets, novelists, playwrights and actors; painters, sculptors, metalsmiths and potters; Socialists, Communists, pacifists and anarchists; promoters of Esperanto, advocates of free love, and in the words of one early resident, "conservatives who had no ideas at all." In their enchanted forest they built a forge and craft shops in order to earn their livings by making and selling useful and beautiful things; they built an intimate open-air theater for performances of the works of the Bard; they staged elaborate medieval pageants, in costumes of their own design, to re-create the spirit of a simpler age; in the twilight, they gathered by a bonfire to sing

Naaman's Creek, site of Arden aquatic pageants, is bordered by beech and poplar, with paths for strolling.

Stephens' reverence for Shakespeare was carried into design of his half-timbered stucco home, built in 1909 with leaded-glass windows. He even carved a favorite motto, "Tomorrow is a New Day," into one crossbeam.

songs and tell stories, cherishing their sense of community. Valuing cooperation above competition, they strove to be happy rather than rich. Delawareans thought they were nuts.

I wish I could say that I discovered Arden in some appropriately romantic fashion—that my Land Rover was stopped by hooded archers in a bosky byway; that I was kidnapped by free-love agitators on a dark and stormy night; or that I tracked a fugitive Soviet coup meister to a secret Stalinist camp in the Delaware woods. Alas, I found it in a book. Browsing through the 1938 Works Progress Administration (WPA) guide to Delaware, I discovered a long description of Arden and decided to find out if this wonderful settlement could possibly have survived the intervening decades.

I found, first of all, that it is not easy to collect information about Arden in the usual ways. I called Directory Assistance to ask for the number of the Arden town hall.

"No listing."

"Office of the mayor or village supervisor?"

"No listing."

"All right, the chamber of commerce, then?"

"No listing."

"Historical society? Rotary? Kiwanis? Elks?"

"No listing."

"Is there a listing of any kind for any town offices?"

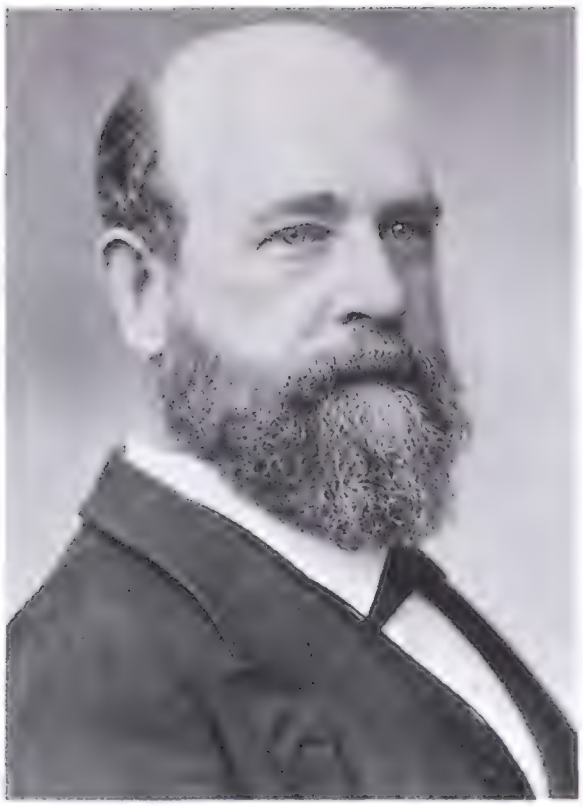
"None. But there is an Arden Club."

"I'll take that."

A few phone calls later I was talking with the granddaughter of Ella Reeve (Mother) Bloor, the famous Communist labor agitator, and she invited me to visit the next Sunday afternoon.

Arden had apparently not changed all that much: I was able to navigate through it quite well by the 54-year-old WPA map. The whole place had a relaxed and congenial atmosphere. The obsessive orderliness of the typical American suburb is absent here. Arden's houses seem to lounge haphazardly under their leafy canopy of trees. That lawn could use a trim; that house, a dose of paint. The street signs are not the standard-issue green rectangles with glow-in-the-dark white letters; they are wooden, with the names carved into them. Surrounding the village green are stuccoed cottages and half-timbered Tudor fantasies, one of them displaying the motto "Tomorrow is a New Day" in Gothic letters (above). That's Arden for you—the future in Gothic script.

Mother Bloor's granddaughter, Joan Ware Colgan, told me about children learning modern dance on the



Henry George, single-tax father, almost won New York mayoralty race in 1886.

green from a member of Isadora Duncan's troupe; about Upton Sinclair living here for a while and losing his wife to some wandering poet; about a pacifist who went to jail during World War I and then went to Russia to teach the Communists how to drive a tractor. She talked about William Morris' idea that artists could live together and make the things they need, and about something called the single tax, which is not a special levy on the unmarried. Listening to Joan, I realized that, by some strange alchemy, the theories and philosophies and crazy hopes of a hundred years ago remain very much alive in this place.

Arden was founded in 1900 by a 40-year-old sculptor and businessman named Frank Stephens. He was slim and good-looking, with a rugged, chiseled face and short, sandy hair. By nature he was autocratic, and he could be hot-tempered in the defense of his beliefs. As an amateur Shakespearean actor, his favorite tragedy was *Julius Caesar*, in which he liked to play the title role, savoring the sweet pain of imagining himself the betrayed, misunderstood dictator. His character was a curious, contradictory mixture of idealism and practicality, of the progressive and the reactionary, of the puritan and the libertine—all of which, in time, would come to be a good description of Arden itself.

The author is a freelance writer whose new book, Old Houses, *is a series of essays on venerable American homes.*

All across America there are dead utopias—Brook Farm, Oneida, Kaweah, Modern Times, Memnonia—places where dreamers pledged to plow and thresh together, to share equally in the sweat and fruits of labor, to yield their individuality or their spouses to the commune. Stephens made no such demands for socialist communality on his fellow citizens; indeed, Arden has always been a crazy quilt of ideologies and an arena of spectacular personality clashes. Stephens did, however, found the village upon a set of economic and social principles. For years he had been a foot soldier in a reformist crusade that is virtually forgotten today, but which fired the world with hope a century ago—the single-tax movement led by the maverick, self-taught economist Henry George. Arden is a living vestige of George's ideals.

The first 40 years of Henry George's life were like a Horatio Alger story without the payoff. Born in Philadelphia in 1839, he went to work at age 13 as an office boy; at 16 he went to sea on a freighter. Back in Philadelphia, and then in Boston and San Francisco, he worked hard at a variety of occupations, mainly journalism. But his efforts to start a news service ran smack dab into an unbreakable monopoly. Meanwhile he sank deeper into debt and degradation. Everywhere he looked he saw poverty growing worse and worse as America's wealth increased, and he wondered why. The answer, he decided, was land. At home in San Francisco, he poured his ideas into a book called *Progress and Poverty*, which for a time threatened to turn the country on its ear.

Henry George's ideas require something larger than a nutshell, but fundamentally he believed that it was a mistake to have private ownership of land. Landowners were nothing but parasites, feeding off the productivity of others through their extraction of rent and high selling prices for land. Whenever productivity improved, bringing increases in wages and business profits, landowners raised their rents or selling prices for the ground beneath homes, stores, businesses and factories, even though they themselves had contributed nothing to the increased productivity. "Rent," George reasoned, "is thus an invisible tax on enterprise. . . . a tax on capital as well as on wages."

His remedy? Ideally, the federal government should nationalize the land, but that was not practical. "*It is not necessary to confiscate land,*" George wrote, "*it is only necessary to confiscate rent.*" Taxing land at its full rental value would effectively turn all the profits of landholding to the common use. The revenue from such a tax would be so great that all other

Tricked out in "tax" armbands, Frank invaded Delaware and landed in prison.

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Joan Ware Colgan, granddaughter of Mother Bloor, is an Arden trustee.

levies could be abolished, replaced by the single tax.

The idea captured the imagination of people from every social and economic class. *Progress and Poverty* sold two million copies in the United States and was translated into a dozen languages. Both George Bernard Shaw and Sun Yat-sen said their ideas were shaped by Henry George. John Dewey declared that George was one of the ten greatest philosophers since Plato. Leo Tolstoy wrote an introduction to a Russian edition of George's works and approached the Romanovs about converting Russia to the single tax. (Interestingly, Karl Marx hated *Progress and Poverty*, dismissing it as the "capitalists' last ditch.")

Throughout this country, enthusiasts joined single-tax clubs to discuss and promote George's ideas. Among the more fervent from the economist's hometown of Philadelphia was Frank Stephens. In the early 1890s Stephens went to New York to place himself at George's service, becoming one of his valued lieutenants. With other Philadelphia single-taxers, Stephens plotted strategy for a blitzkrieg during the 1896 elections. They needed to capture an entire political entity where they could install the single-tax system and prove that it worked. They decided to take over Delaware.

In preparation for the campaign, scores of single-taxers went into training as public speakers. It is said that Demosthenes put pebbles in his mouth and orated to the waves; the single-taxers formed a Shakespeare Club and honed their skills on "Friends, Romans, countrymen!" Brown uniforms, emblazoned with a symbol of the Earth, were stitched up, and thus attired, the single-taxers commenced the invasion of Delaware to promote their slate of candidates.

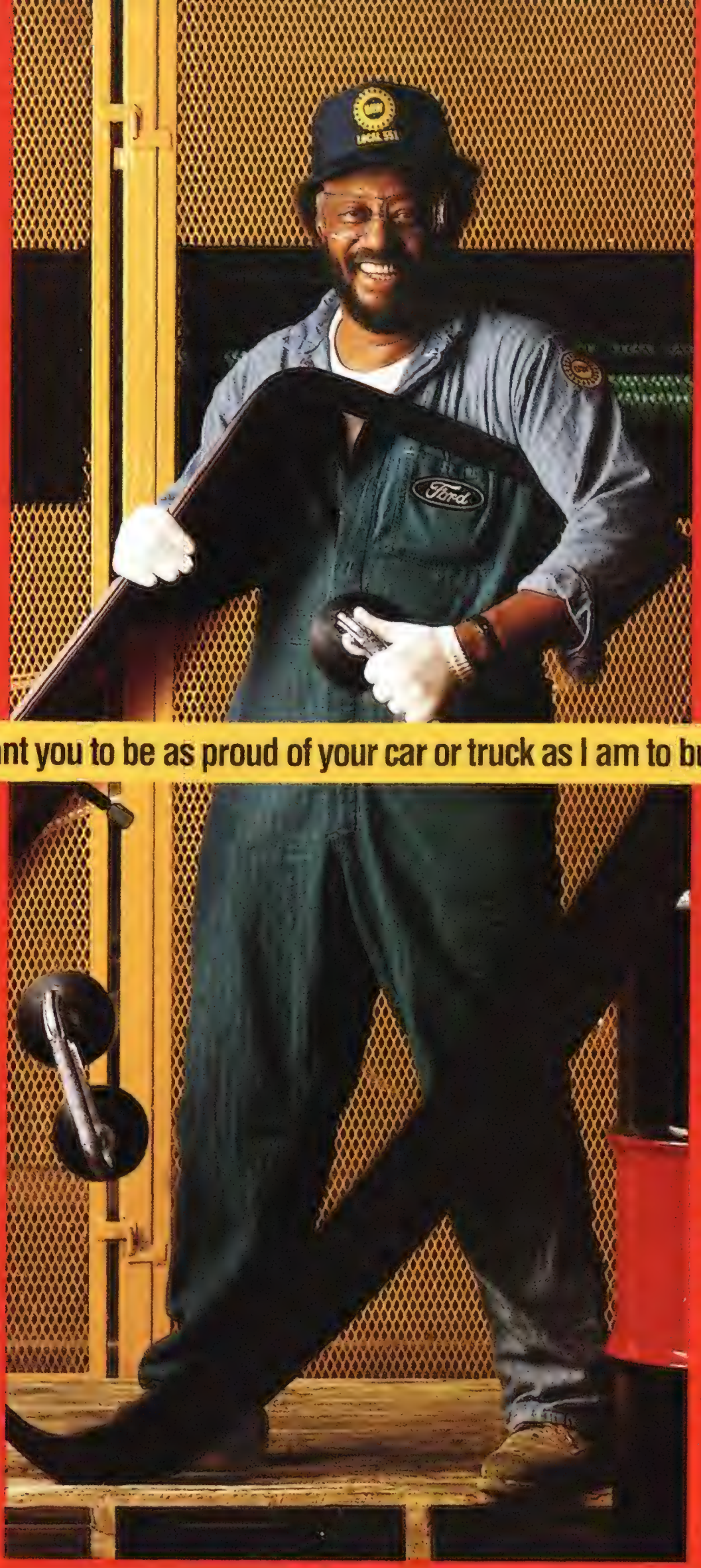
But Delaware resisted being made the test tube for the millennium. Denounced in the press as "depraved and irresponsible vagabonds," the invaders were arrested one by one for violating the public-speaking and public-assembly regulations; Stephens was the second to be hauled in. In the face of diligent police work, the campaign was in danger of faltering, but Stephens believed he had a trump card. The master himself, Henry George, was monitoring the campaign with his chief strategists. If the authorities arrested him, there would be an immense public outcry. In high excitement, the single-taxers wired George: "Do you wish to personally test the law? Sentence for 30 days certain." But George drew the line at civil disobedience and refused to come. The single-tax slate was resoundingly defeated.

It was just as well that George stayed out of jail. Although he was only 58 years old, his health was failing rapidly. He suffered a fatal stroke in October 1897.

It would be difficult to exaggerate the scope of the grief felt at George's sudden death. An elderly abolitionist said that in his memory only Lincoln's assassination had touched the nation more deeply. George's son, touring Russia about a decade later, paid a call on Tolstoy, who offered to carry a personal message to George in the afterlife: "I shall see your father before you do. What shall I tell him?" "Tell him," said the son, "I kept the faith."

So did Frank Stephens. With another single-taxer from Philadelphia, an architect named Will Price, Stephens made plans for Arden. It would

The colony was a rustic summer retreat for city folk, but in its first decade many of Arden's residents also chose to live in tents.



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In heyday, Arden Forge made fine ironwork, such as andirons, sconces.

Turning out jewelry and silver occupied this young woman in the early days.

Patrons bought, and residents bartered for, Weave Shop's fine linens, wools.

Caning and basket weaving were other crafts for which Arden was noted.

be right under the noses of his old enemies in Delaware. With his own money and some of Price's, and a loan from millionaire soap manufacturer Joseph Fels, who had a deep interest in the single-tax movement, Stephens purchased a 162-acre farm north of Wilmington.

Stephens drew up a deed of trust that established Arden as a single-tax enclave along the lines that George had proposed: there would be no private ownership of land; the land would be held in trust by three trustees, who would grant 99-year leases to residents. The trustees would determine the value of each parcel and set the land rent—the single tax—to be paid annually. (This duty was soon to be taken over by elected assessors.) No other local levies would be assessed. As time went on and land values rose, rents would increase—so the wealth created by the community, reflected in the rising value of the land, would be shared by the community. Residents could sell their houses but not the land. Upon the sale of a house, the land lease would be transferred to the new owner.

It was one thing to draw up a document governing a patch of empty acres; it was quite another to fill those acres with a living population. Turning to the ideas of the English reformers John Ruskin and William Morris, Stephens envisioned a community of artists and artisans who would support themselves in modest comfort, producing fine objects. In this village of tidy cottages and shops and forges, of genial fraternity and sorority, the true coin of the realm would be art. Accordingly, Stephens drew up a manifesto of principles: "The Arden craftsmen are a company of men and women who believe with the great English craftsman and prophet William Morris that 'all men should have work to do which shall be worth doing and be of itself pleasant to do' and which should be done under such conditions as would make it neither overwearisome nor overanxious. They believe also with Ruskin that men need not be baited into a shop like moths into a candle and that there are those who will buy what is useful without being ill-designed and dishonestly made even though its cost is more than that of factory goods."

The program required the proper setting. Will Price laid out the village, devoting nearly half of the land to greens, forests, paths and roads. He arranged house lots and roads to follow the contours of the land rather than the grid of a draftsman, and knitted the town together by a network of paths in an early example of separating vehicular and pedestrian traffic. Price's carefully groomed rustic setting and half-timbered cottages brought to life the medievalist spirit of William Morris. The spirit of Shakespeare hovered over the enter-

"Jump Up And Kiss Me," I Said.

Of course, I was simply saying the name of my favorite rum drink.

◆

Ton Ton the bartender made it with Myers's Original Dark Rum. It makes a Jump Up and Kiss Me twice as dark and alluring.

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"Why the monkey?" I asked.

◆

"He peels the bananas for my daiquiris," said Ton Ton. "I pay him peanuts."

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How to Jump Up and Kiss Someone: 1¼ oz. Myers's Original Dark Rum, 4 oz. pineapple juice, ½ oz. lime juice, dash of bitters.

prise as well. One of the first communal building projects was an open-air theater for Shakespearean productions.

After a slow start, Arden took off. Some people were merely summer residents, living in tents; others, more permanent, commuted by rail to jobs in Philadelphia or Wilmington. But true to Stephens' vision, a cadre of stay-at-home artists and artisans went at their happy toil. The forest rang with the music of hammers. In the medieval fashion advocated by Morris, most of the artisans were organized into guilds. There were potters, stained-glass craftsmen, silversmiths, woodworkers, printers and furniture makers. The Weave Shop was begun with one employee who made wool and other sturdy fabrics. Eventually it had about 30 weavers who made fine linens. Stephens devoted his attention

Arden's swimming hole was created by damming a creek in a leafy glade. Upstream pollution and development destroyed it 30 years ago.

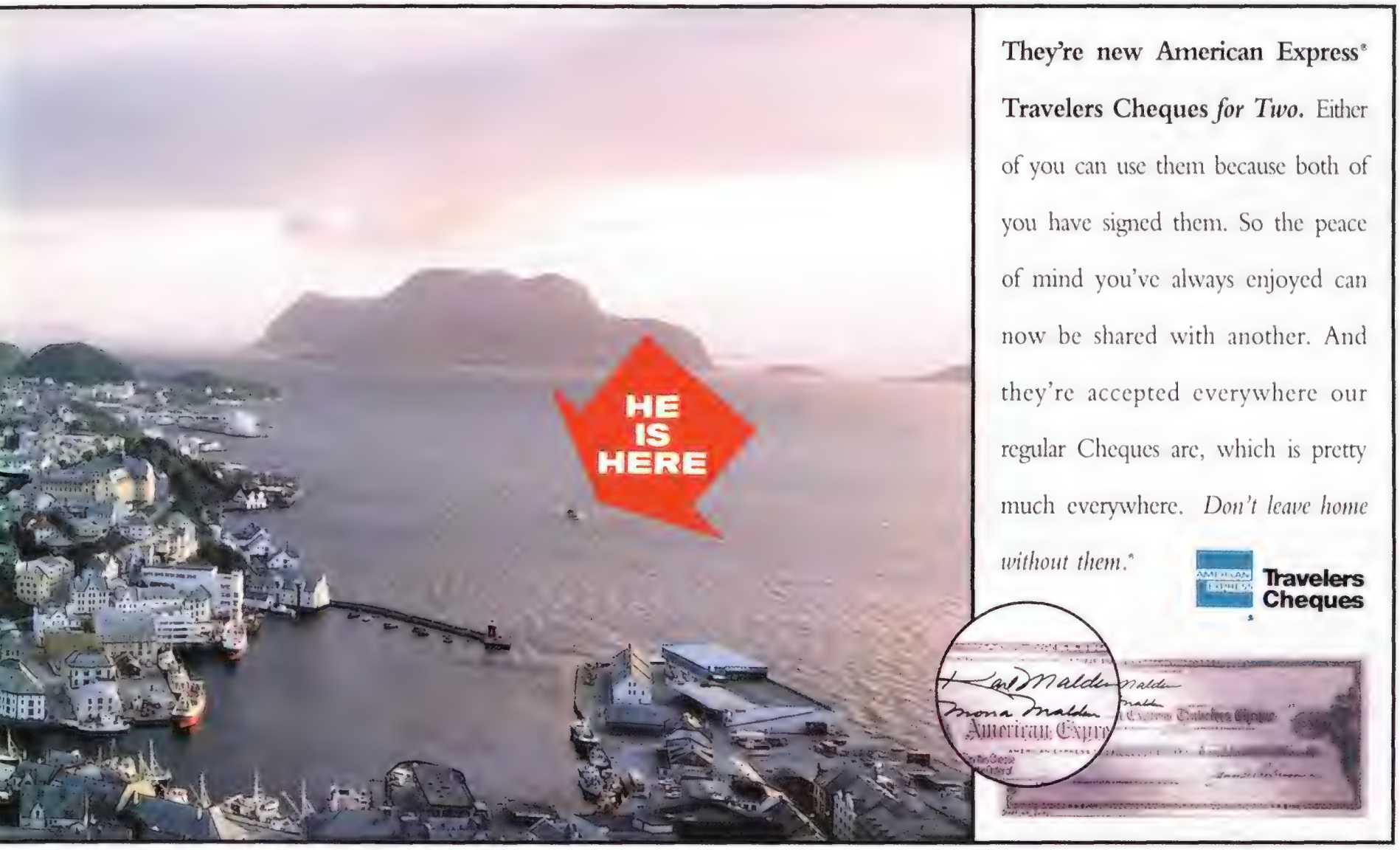
to the Arden Forge, which produced lamps, lanterns, door latches and hinges, fireplace tools, and other works of iron. Cash-poor Ardenites could not afford to buy their own products, so the guilds depended on the New York, Philadelphia and Wilmington carriage trade. Members of the duPont family were occasional customers, and it is said that stage and screen stars Lillian and Dorothy Gish visited Arden to buy wool.

Stephens welcomed all comers; one did not have to declare allegiance to the thoughts of Henry George to take up residence. As a practical matter, putting down roots in Arden was cheap because you could *not* buy land. Most of the residents did their own construction and other work, a self-sufficiency that pleased Stephens.

Fred Whiteside, later well known in Delaware as the perennial Socialist candidate for governor and State Senator, inadvertently created one of the enduring myths about Arden when he built a tree house as a retreat for Sunday-morning reflection. The Delaware press expanded this single tree house into headlines and stories proclaiming that Ardenites lived in trees.

The tree house affair was nothing compared with the cyclone of publicity generated by the presence in Arden of America's most famous Socialist, Upton Sinclair. The muckraking author arrived in the spring of 1910, three years after Helicon Hall, his own experimental colony in New Jersey, had mysteriously gone up in flames. Although widely celebrated as author of *The Jungle*, Sinclair had an aversion to spending. Arden seemed a perfect place to live cheaply and write. He settled into a humble compound of three tents with his wife, Meta, their son, David, a secretary (with whom Will Price fell in love) and Mary Craig Kimbrough, who would become Sinclair's second wife. "How many of the so-called necessities can men dispense with when they have to!" he exulted in his autobiography. "I bathed every morning of that winter in Arden with water in a tin washbasin and a newspaper spread upon a tent floor." In 1911, with funds from the sale of a novel, he hired Stephens to build him a two-story cottage, which still stands.

Into his Eden, Sinclair invited the serpent in the form of Harry Kemp, the "Tramp Poet," who traveled with hoboes and worked the Great Lakes ore boats. In his memoir *Tramping on Life*, Kemp describes finding "toy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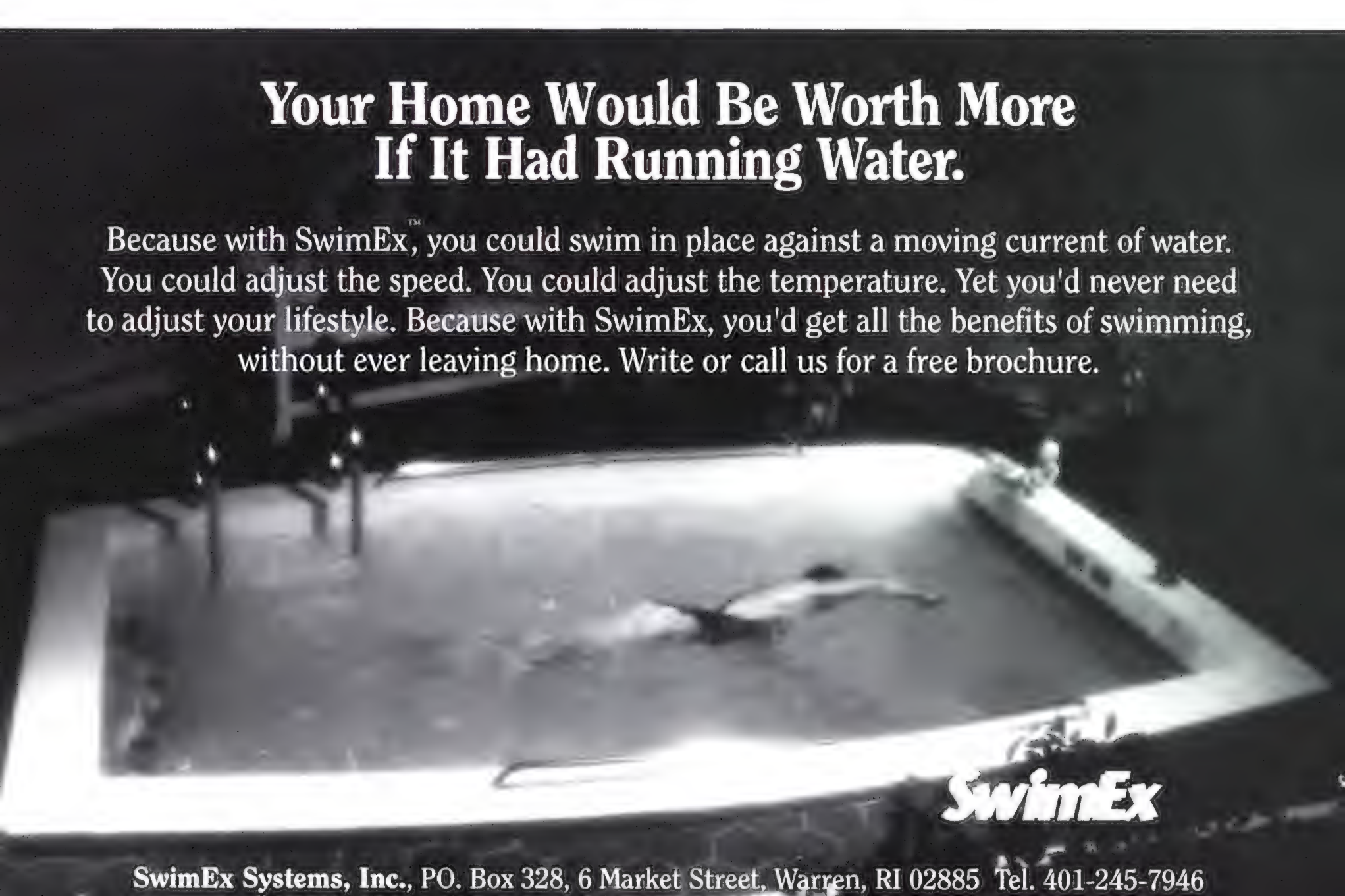
companions who aren't companions constantly.

houses picturesquely set under trees that fringed the Common," occupied by "folk of every shade of radical opinion . . . who here strove to escape the galling mockeries of civilisation and win back again to pastoral simplicity." Simplicity included not washing the dishes—Sinclair and his family ate from wooden plates and tossed them into the fire at the end of a meal.

Kemp moved into a tent provided by Sinclair and quickly adapted to the rhythm of life in Arden. He was awakened by the birds, and spent his days writing and in literary conversations with Meta. He attended a "circus" in which all the animals were Ardenites in costume, and passed many a pleasant twilight at the communal sing-alongs in the woods: "the music softened our hearts and fused us into one harmony of feeling."

It would be gratifying to say that Arden enjoyed a long era of good feeling, but that was not the case. Stephens' open-door policy created problems because many of the settlers were Socialists (a few were anarchists) who regarded the single-taxers as politically suspect and had little use for their theories. In the summer of 1911, an anarchist shoemaker named George Brown, who thought the village was getting a bit too respectable, decided to stir things up: he used a public committee meeting as a forum for his theories of sexuality, prompting the committee to have him arrested for disrupting the proceedings. Noting that the committee members habitually played baseball on the town green on Sundays, Brown went into Wilmington to have *them* arrested for "gaming on the Sabbath" in violation of an ancient state law. Upton Sinclair was caught in this net, as he had played tennis on the Sunday in question, and spent a night in the county workhouse with the other violators. A crowd of reporters descended upon New Castle County to get the story, giving Sinclair the opportunity to denounce conditions in the jail to a national audience.

Sinclair soon made headlines again, in a scandal that helped create Arden's reputation as a free-love nest. The marriage of Upton to Meta had been unraveling before they got to Arden, and the arrival of Harry Kemp made for a triangle. During a chat with Meta, Kemp's eye had caught "the white gleam of one of her pretty legs where the elastic on one side of her bloomers had slipped up." Several weeks later Meta was slipping her bloomers completely off, as she and a naked Kemp played nymph and satyr, chasing each other through the Arden woods. One afternoon there was a moment of panic when they couldn't recall where they had stashed their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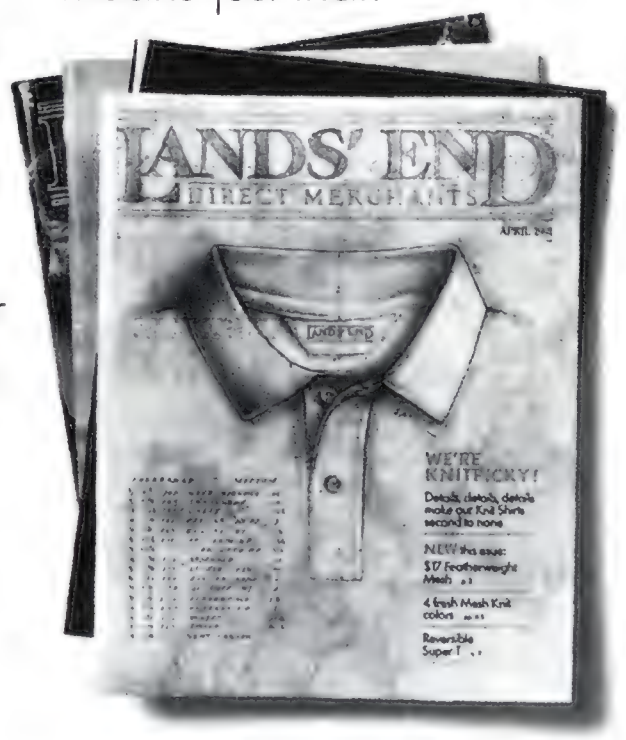

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clothes. Harry and Meta left Arden for New York, and Upton filed suit for divorce to the accompaniment of trumpet blasts of publicity.

Free love was not part of the single-tax program, but it might as well have been. The story is still told of a beautiful young model who fell in love, simultaneously, with two artists who were painting her. She told them to flip a coin to see who would claim fatherhood of her son, and they did. At some point in his life Stephens became a believer in free love. In the 1880s he had been married to Caroline Eakins, the youngest sister of the painter Thomas Eakins (SMITHSONIAN, November 1991). She died in 1889, not long after giving birth to her third child. In a strange controversy that took place in 1886, Stephens had been the prime mover in the ouster of Eakins from his post as director of the Pennsylvania Academy of Fine Arts, supposedly because of liberties Eakins had taken with his female students. But in the 1890s Stephens was living in sin quite openly with a woman named Elenor Getty. She never liked the free-love arrangement and finally persuaded him to go through with the formality of marriage—to his dismay.

One of today's Ardenites whose memories stretch back to the early years is Amy Potter Cook. Ask her about the romantic scandals that swirled around Arden, and she responds, "Free love—we had that all over the place." But joshing an outsider, especially on the subject of sex, is an old Arden sport. As Amy relates, "Frank Stephens used to tell people, with a straight face, 'On very hot nights we take off our clothes and go into the creek to sleep.' "

Amy has vivid memories of Stephens working at his forge and of Will Price acting in Arden's Shakespeare productions. "Their whole idea," she says, "was to reenact Merrie Olde England." Her recollection is borne out by photographs of elaborate pageants, with knights and maidens (but no Godivas) riding through the town. Few onlookers appear because just about everyone in Arden was *in* these pageants. "The costumes were magnificent," Amy recalls. A brief memoir by Marjory Poinsett Jobson describes the Venetian Water Carnivals. During the day there were diving contests, races, games and music. When night fell, the revelers walked down a path illuminated by candles to the creek for a waterborne pageant: "a queen and her court . . . came floating downstream on a barge with torches glowing and music playing as the pretty girls in long flowing dresses smiled and threw flowers to the crowd."

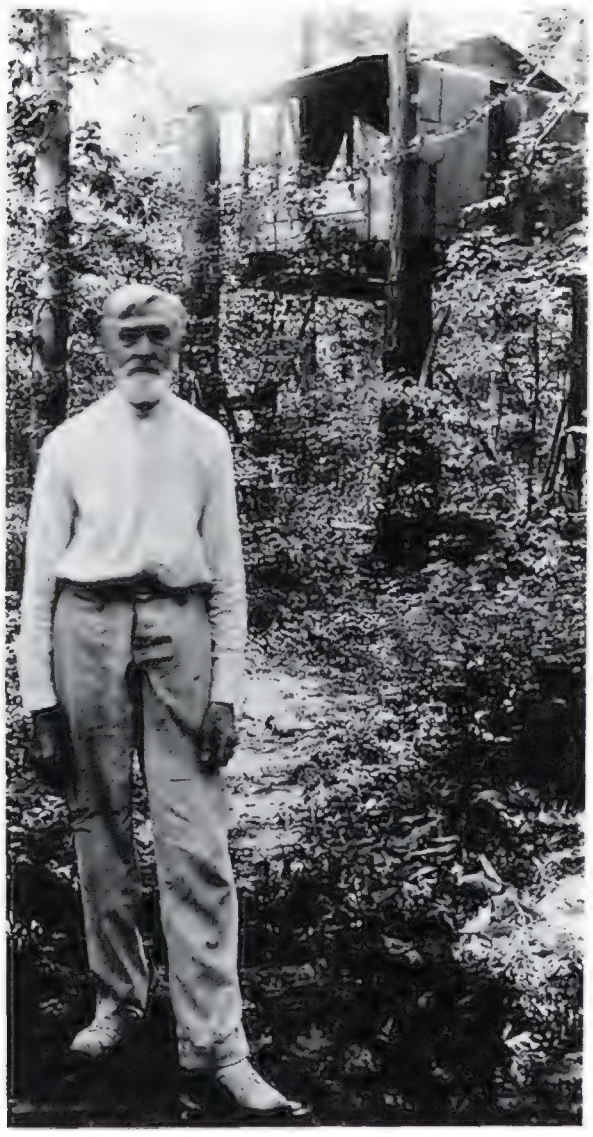
With the coming of World War I, Arden and the whole single-tax movement were split on the issue of pacifism. Daniel Kiefer sr., an Arden resident and pacifist, was removed from the chairmanship of the national single-tax organization. Stephens' son Donald spent nine months in jail for refusing to serve. He was nearly joined by his father.

In 1918 a certain Mabel P. Van Trump called upon Ardenites to buy Liberty Bonds. Stephens fell upon her like a tiger: "You are a murderer and everybody who sells Liberty Bonds!" he thundered. "You are sending our soldiers abroad to be murdered!" Van Trump duly reported this outburst to the authorities, and Stephens found himself in federal court, charged with "making a certain false statement with intent to interfere with the operation and success of the military and naval forces of the United States." A jury refused to believe that calling Mabel Van Trump a murderer in Arden put the doughboys in jeopardy in France. Stephens was acquitted. One of the jurors sent him the $9 he had received for sitting on the panel.

In 1922 the single-tax experiment expanded with the creation of Ardentown on 110 acres adjacent to Arden. A few years later, Stephens helped found Gilpin's Point, another single-tax community near Denton, Maryland. Visiting there with his two sons in 1935, he merrily organized an Arden-style campfire and, according to Donald, was "the life of the evening. He sang, recited and read Uncle Remus stories to us." The next day, Stephens, who had a history of heart trouble, was dead of a heart attack.

By that time Arden had been dealt heavy blows by the Depression, which

In 1928 Donald Stephens put on a Russian Night to benefit the village. It included this scene in a fourth-class Russian train.



Writer Upton Sinclair by tree house: it sparked rumor Ardenites lived in trees.

wiped out much of the market for expensive, high-quality crafts and forced the closure of the Craft Shop. But the Ardenites hung on. Joan Colgan remembers that there was a lot of bartering during the Depression, and "a lot of cooperation." The townspeople grew their own food and had communal canning sessions at the Gild Hall. Arden managed to survive, but no one knows how. As Amy Potter Cook says, "Everybody in Arden always wondered about that themselves."

Then, in 1950, there was a further expansion. Donald Stephens was instrumental in the purchase of another section of adjacent land to form the town of Ardencroft. This time the planners reached out to one group that had previously been left out of the Arden experiment—African-Americans. Village leaders went into Wilmington to recruit them. The presence of these families brought Ardenites face-to-face with the question of integrating their grammar school. They did so, becoming the first locality in Delaware to integrate voluntarily.

In the early 1950s Arden was still a place apart, a forest surrounded by farms. Then came the suburbs. The growth of the DuPont company spawned huge housing developments around Wilmington. Arden was protected from unwanted development by its deed, which set aside the forests and other common lands as forever untouchable. Isolated within its bastion of greenery, with its private holidays and pageants and its peculiar history, Arden was viewed with wariness by the new neighbors. The old stories of free love, anarchism and Communism floated up again.

Alan and Maria Burslem, who grew up in Arden in the 1950s and '60s, recall the culture shock that occurred when Arden kids graduated from the town's grammar school and ventured into the regional junior high school.

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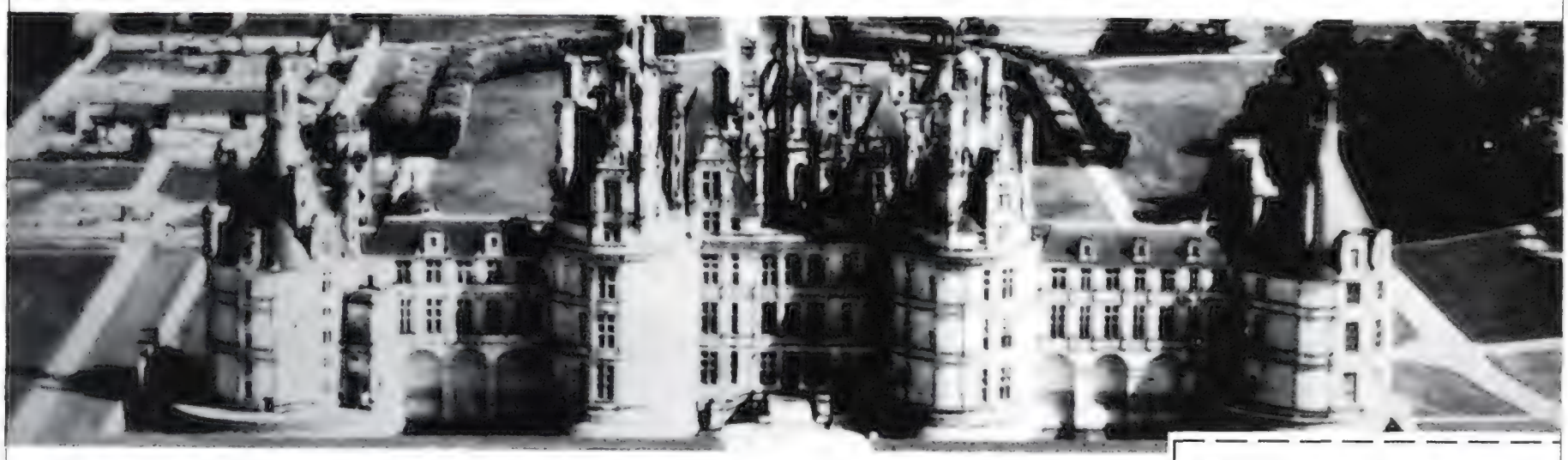

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Maria says, "I had some friends in junior high who were not allowed to come to Arden. Their parents had heard rumors about that crazy little town, that it was a nudist camp."

Alan thinks that the outsiders' fears arose partly because Arden just looked so different: "We had trees and dense growth. Arden was a scary place to go into from the land of a thousand brand-new houses and no trees."

The Burslems and their two sons live in a house Maria's great-grandfather built as a summer place in 1919 (it has been greatly enlarged since then). She has the deed fixing the original annual rent of $10.65 for the land. Also on the property are Alan's pottery workshop and showroom. "It's a great place to be an artist," he says. "We wander around to each other's studios. I drag people into mine when I'm excited about new work."

Maria finds that the old Arden spirit is still alive: "There is a deep caring among those who live here. We treasure that closeness. You're in contact with all different generations. It's inspiring to see Rae Gerstine dancing away at the folk dance every Wednesday, at age 91 or whatever."

Rae can indeed be found at the regular Wednesday folk dancing at the Gild Hall, a meeting place that had been the barn of the farmer who sold the land to Frank Stephens. Under the lofty ceiling, people of all ages square dance to recorded music and a live caller. After a few numbers, the caller steps down from the stage, and a folk-dance instructor puts on recordings of Polish, Armenian, Israeli and other dances. When Rae finally decides to sit out, she talks animatedly of her life in Arden. "I was 93 last November, but I still function. I do so much I can't keep pace with everything. I dance and I go swimming." She is also one of the financial pillars of the town, serving as the secretary-treasurer of the Arden Building & Loan, which she operates out

Woodland *Midsummer Night's Dream* typified early plays and pageants; almost everyone was an eager participant.

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INDICATIONS AND USAGE

This drug product has been conditionally approved by the FDA for the prevention of angina pectoris due to coronary artery disease. Tolerance to the anti-anginal effects of nitrates (measured by exercise stress testing) has been shown to be a major factor limiting efficacy when transdermal nitrates are used continuously for longer than 12 hours each day. The development of tolerance can be altered (prevented or attenuated) by use of a noncontinuous (intermittent) dosing schedule with a nitrate-free interval of 10–12 hours

Controlled clinical trial data suggest that the intermittent use of nitrates is associated with decreased exercise tolerance, in comparison to placebo, during the last part of the nitrate-free interval; the clinical relevance of this observation is unknown, but the possibility of increased frequency or severity of angina during the nitrate-free interval should be considered. Further investigations of the tolerance phenomenon and best regimen are ongoing. A final evaluation of the effectiveness of the product will be announced by the FDA.

CONTRAINDICATIONS: Allergic reactions to organic nitrates are extremely rare, but they do occur. Nitroglycerin is contraindicated in patients who are allergic to it. Allergy to the adhesives used in nitroglycerin patches has also been reported, and it similarly constitutes a contraindication to the use of this product **WARNINGS:** The benefits of transdermal nitroglycerin in patients with acute myocardial infarction or congestive heart failure have not been established. If one elects to use nitroglycerin in these conditions, careful clinical or hemodynamic monitoring must be used to avoid the hazards of hypotension and tachycardia. A cardioverter/defibrillator should not be discharged through a paddle electrode that overlies a MINITRAN patch. The arcing that may be seen in this situation is harmless in itself, but it may be associated with local current concentration that can cause damage to the paddles and burns to the patient. **PRECAUTIONS:** General: Severe hypotension, particularly with upright posture, may occur with even small doses of nitroglycerin. This drug should therefore be used with caution in patients who may be volume depleted or who, for whatever reason, are already hypotensive. Hypotension induced by nitroglycerin may be accompanied by paradoxical bradycardia and increased angina pectoris. Nitrate therapy may aggravate the angina caused by hypertrophic cardiomyopathy. As tolerance to other forms of nitroglycerin develops, the effect of sublingual nitroglycerin on exercise tolerance, although still observable, is somewhat blunted. In industrial workers who have had long-term exposure to unknown (presumably high) doses of organic nitrates, tolerance clearly occurs. Chest pain, acute myocardial infarction, and even sudden death have occurred during temporary withdrawal of nitrates from these workers, demonstrating the existence of true physical dependence. Several clinical trials in patients with angina pectoris have evaluated nitroglycerin regimens which incorporated a 10–12 hour nitrate-free interval. In some of these trials, an increase in the frequency of anginal attacks during the nitrate-free interval was observed in a small number of patients. In one trial, patients demonstrated decreased exercise tolerance at the end of the nitrate-free interval. Hemodynamic rebound has been observed only rarely; on the other hand, few studies were so designed that rebound, if it had occurred, would have been detected. The importance of these observations to the routine, clinical use of transdermal nitroglycerin is unknown. **Information for Patients:** Daily headaches sometimes accompany treatment with nitroglycerin. In patients who get these headaches, the headache may be a marker of the activity of the drug. Patients should resist the temptation to avoid headaches by altering the schedule of their treatment with nitroglycerin, since loss of headache may be associated with simultaneous loss of anti-anginal efficacy. Treatment with nitroglycerin may be associated with lightheadedness on standing, especially just after rising from a recumbent or seated position. This effect may be more frequent in patients who have also consumed alcohol. After normal use, there is enough residual nitroglycerin in discarded patches that they are a potential hazard to children and pets. A patient leaflet is supplied with the systems. **Drug Interactions:** The vasodilating effects of nitroglycerin may be additive with those of other vasodilators. Alcohol, in particular, has been found to exhibit additive effects of this variety. **Carcinogenesis, Mutagenesis, and Impairment of Fertility:** No long-term animal studies have examined the carcinogenic or mutagenic potential of nitroglycerin. Nitroglycerin's effect upon reproductive capacity is similarly unknown. **Pregnancy Category C:** Animal reproduction studies have not been conducted on nitroglycerin. It is also not known whether nitroglycerin can cause fetal harm when administered to a pregnant woman or whether it can affect reproductive capacity. Nitroglycerin should be given to a pregnant woman only if clearly needed. **Nursing Mothers:** It is not known whether nitroglycerin is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when nitroglycerin is administered to a nursing woman. **Pediatric Use:** Safety and effectiveness in children have not been established. **ADVERSE REACTIONS:** Adverse reactions to nitroglycerin are generally dose-related, and almost all of these reactions are the result of nitroglycerin's activity as a vasodilator. Headache, which may be severe, is the most commonly reported side effect. Headache may be recurrent with each daily dose, especially at higher doses. Transient episodes of lightheadedness, occasionally related to blood pressure changes, may also occur. Hypotension occurs infrequently, but in some patients it may be severe enough to warrant discontinuation of therapy. Syncope, crescendo angina, and rebound hypertension have been reported but are uncommon. Extremely rarely, ordinary doses of organic nitrates have caused methemoglobinemia in normal-seeming patients. Methemoglobinemia is so infrequent at these doses that further discussion of its diagnosis and *treatment is deferred (see* **Overdosage***). Application-site irritation may occur but is rarely severe. In two placebo-controlled trials of intermittent therapy with* nitroglycerin patches at 0.2 to 0.8 mg/hr, the most frequent adverse reactions among 307 subjects were as follows

	placebo	patch		placebo	patch
headache	18%	63%	hypotension and/or syncope	0%	4%
lightheadedness	4%	6%	increased angina	2%	2%

OVERDOSAGE: Hemodynamic Effects: The ill effects of nitroglycerin overdose are generally the results of nitroglycerin's capacity to induce vasodilatation, venous pooling, reduced cardiac output, and hypotension. These hemodynamic changes may have protean manifestations, including increased intracranial pressure with any or all of persistent throbbing headache, confusion, and moderate fever; vertigo; palpitations; visual disturbances; nausea and vomiting (possibly with colic and even bloody diarrhea); syncope (especially in the upright posture); air hunger and dyspnea, later followed by reduced ventilatory effort; diaphoresis, with the skin either flushed or cold and clammy; heart block and bradycardia; paralysis; coma; seizures; and death. Laboratory determinations of serum levels of nitroglycerin and its metabolites are not widely available, and such determinations have, in any event, no established role in the management of nitroglycerin overdose. No data are available to suggest physiological maneuvers (e.g., maneuvers to change the pH of the urine) that might accelerate elimination of nitroglycerin and its active metabolites. Similarly, it is not known which – if any – of these substances can usefully be removed from the body by hemodialysis. No specific antagonist to the vasodilator effects of nitroglycerin is known, and no intervention has been subject to controlled study as a therapy of nitroglycerin overdose. Because the hypotension associated with nitroglycerin overdose is the result of venodilatation and arterial hypovolemia, prudent therapy in this situation should be directed toward increase in central fluid volume. Passive elevation of the patient's legs may be sufficient, but intravenous infusion of normal saline or similar fluid may also be necessary. The use of epinephrine or other arterial vasoconstrictors in this setting is likely to do more harm than good. In patients with renal disease or congestive heart failure, therapy resulting in central volume expansion is not without hazard. Treatment of nitroglycerin overdose in these patients may be subtle and difficult, and invasive monitoring may be required. **Methemoglobinemia:** Nitrate ions liberated during metabolism of nitroglycerin can oxidize hemoglobin into methemoglobin. Even in patients totally without cytochrome b_5 reductase activity, however, and even assuming that nitrate moieties of nitroglycerin are quantitatively applied to oxidation of hemoglobin, about 1 mg/kg of nitroglycerin should be required before any of these patients manifests clinically significant (≥10%) methemoglobinemia. In patients with normal reductase function, significant production of methemoglobin should require even larger doses of nitroglycerin. In one study in which 36 patients received 2–4 weeks of continuous nitroglycerin therapy at 3.1 to 4.4 mg/hr, the average methemoglobin level measured was 0.2%; this was comparable to that observed in parallel patients who received placebo. Notwithstanding these observations, there are case reports of significant methemoglobinemia in association with moderate overdoses of organic nitrates. None of the affected patients had been thought to be unusually susceptible. Methemoglobin levels are available from most clinical laboratories. The diagnosis should be suspected in patients who exhibit signs of impaired oxygen delivery despite adequate cardiac output and adequate arterial pO_2. Classically, methemoglobinemic blood is described as chocolate brown, without color change on exposure to air. When methemoglobinemia is diagnosed, the treatment of choice is methylene blue, 1–2 mg/kg intravenously **DOSAGE AND ADMINISTRATION:** The suggested starting dose is between 0.2 mg/hr* and 0.4 mg/hr*. Doses between 0.4 mg/hr* and 0.8 mg/hr* have shown continued effectiveness for 10–12 hours daily for at least one month (the longest period studied) of intermittent administration. Although the minimum nitrate-free interval has not been defined, data show that a nitrate-free interval of 10–12 hours is sufficient. Thus, an appropriate dosing schedule for nitroglycerin patches would include a daily patch-on period of 12–14 hours and a daily patch-off period of 10–12 hours. Although some well-controlled clinical trials using exercise tolerance testing have shown maintenance of effectiveness when patches are worn continuously, the large majority of such controlled trials have shown the development of tolerance (i.e., complete loss of effect) within the first 24 hours after therapy was initiated. Dose adjustment, even to levels much higher than generally used, did not restore efficacy. **STORAGE CONDITIONS:** Store at controlled room temperature 15°–30°C (59°–86°F). Extremes of temperature and or humidity should be avoided. **CAUTION:** Federal law prohibits dispensing without prescription

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REFERENCES: 1. Hougham AJ, Hawkinson RW, Crowley JK, et al. *Clin Ther.* 1989;11(1):15–31. 2. Pharmaceutical Data Services; Scottsdale, AZ: Jan 1992. Retail pricing may vary from community to community and may affect cost savings to the patient. Transderm-Nitro is a registered trademark of Ciba Pharmaceutical Co; Nitro-Dur, of Key Pharmaceuticals, Inc
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Sculptor was but one of Stephens' roles; some others: scholar, actor, economist.

of her home to keep the overhead low. "We charge no points," she says proudly. "When someone asks for a loan, I tell them the fee is $5, payable in singles." The B & L takes two singles to cover processing costs (it makes loans only in the three Arden communities), and the appraisal committee gets the remainder.

Two beneficiaries of the Building & Loan's lending program are Susan and Edward Rohrbach, who are putting an addition on their house facing the Arden Green. Called Rest Cottage, the half-timbered house is one of the oldest in town. It was designed by Will Price himself. Both Rohrbachs are painters, and Edward is an architect as well. He is designing and building the addition himself, to harmonize with the original architecture. The interior is cozy, and crowded with books and artworks. A large wood-burning stove takes up a good part of the living room; there is no other heat. In the yard, the Rohrbach children, ages 10 and 13, have a ramshackle playhouse built of scraps, harmonizing with no particular style but entirely in the spirit of Arden.

Susan grew up near Arden and al-

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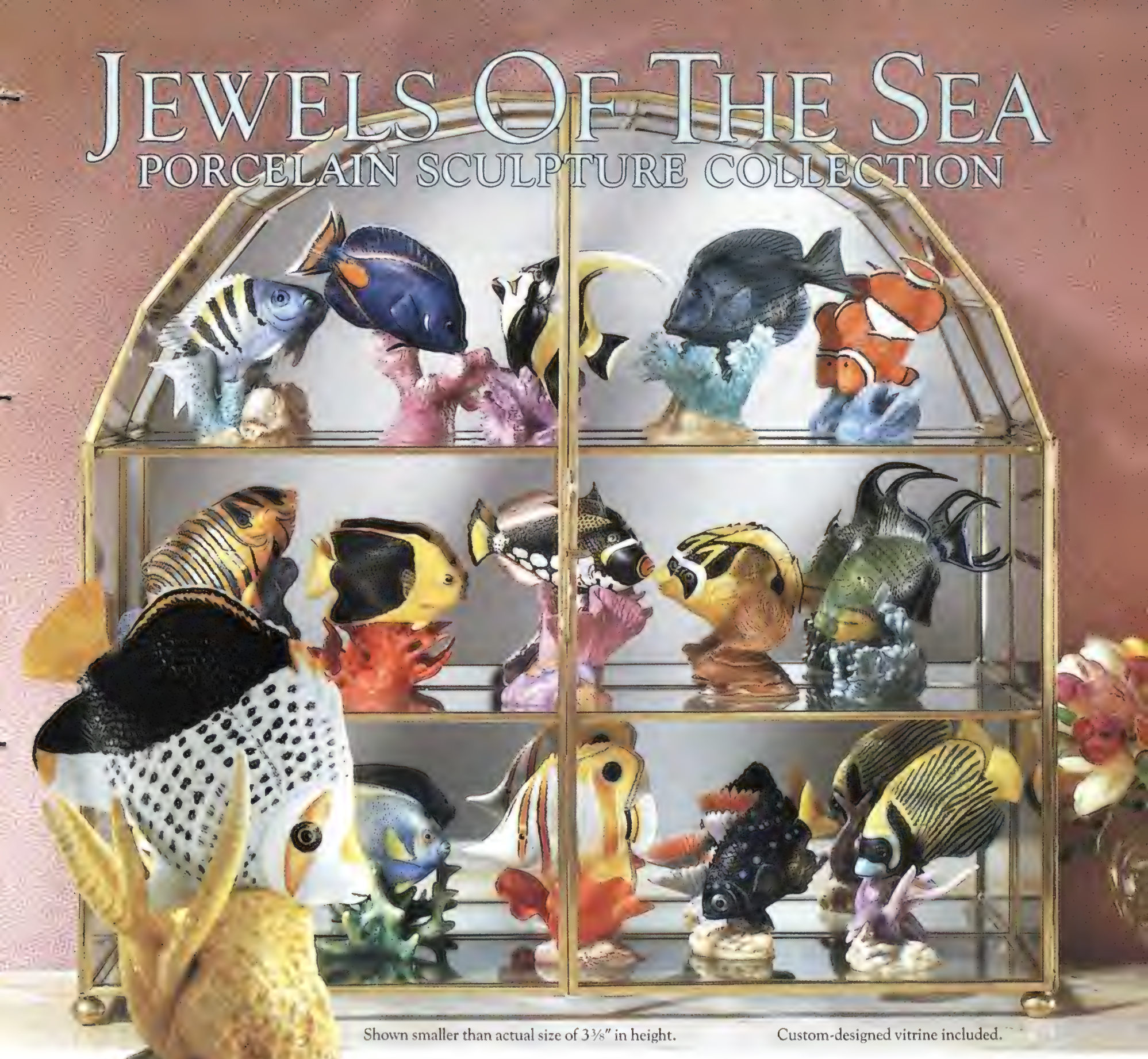

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ways yearned to get in, especially after she had children. "I wanted them to experience the freedom and involvement of living in a community like this. They can be themselves here, and they also feel a real responsibility to the town. It's like an extended family."

With a population of about 500, Arden still operates under the single-tax system, which has an unusual effect on homeowners, an effect that is not to everyone's liking. Because Arden collects taxes based on land alone, regardless of what stands upon it, a small house on a half-acre is taxed at the same rate as a large house on a half-acre. As Henry George intended, the single-tax system rewards someone who gets maximum economic use from the smallest amount of land.

In a film history of Arden, Mike Curtis, an Arden resident who is the director of the Henry George School in Philadelphia, defends the peculiar results of the single-tax system: "What is a man getting from the community? He's getting . . . land. Well, he should pay the community for that. Through his own efforts he's built a big house. Why should he owe other people money for that? Why should he pay a fine for his industry? To me, it makes all the sense in the world." (Single-tax fervor runs deep in Mike's family: at a raucous town meeting in 1954, his grandmother literally dropped dead arguing about someone trying to sell—sell!—land.)

Since 1967, when the village was incorporated, the controlling government body has been the Town Assembly, which meets four times a year. Budgets must be approved by a majority of eligible voters—age 18 or older—attending. The town's 1992 budget is about $220,000, which Arden collects from its citizens through land rent. Of that amount, roughly $150,000 will go to New Castle County for schools, police protection and property taxes (the town is *not* exempt from county property taxes). Arden pays for its own trash collection and road maintenance, and is covered by a nearby volunteer fire department.

The tax payment, or land rent, for a quarter-acre lot is about $720, subject to adjustments according to the desirability of a lot's location. No bureaucracy exists; indeed, there are only two paid employees, both part-time: the secretary and the treasurer. Well-organized committees staffed by volunteers do just about all of the work. In the words of one resident, "It's the purest democracy you can get."

With very little effort, Arden could have transformed itself into a tourist stop—a faux art colony with weekend studio tours and troubadours on the Green, or a Colonial Williamsburg of socialism and free love. But Ardenites have never aspired to make their community a living museum. Visitors who wander into it looking for entertainment will come away disappointed. It is quiet and picturesque, but there's no place to buy ice cream or HENRY GEORGE T-shirts. Nor is Arden an architectural theme park—mingling with the half-timbered cottages are ranch houses and split-levels. Despite the architectural impurities, Frank Stephens and Will Price would recognize much of their town if they stopped by today. They would also find the old spirit of Arden intact, a spirit described by a visitor in 1915: "Arden is the capital of the state of Uncritical Friendliness; it belongs to the federation of Mutual Helpfulness, under a constitution of Equal Opportunity. It is far removed from the world we know."

Busy Ardenites (from left): Rae Gerstine keeps Building & Loan solvent; Susan and Ed Rohrbach, with sons Alex (in cap) and Sian, are remodeling home; Amy Potter Cook holds a magazine cover she designed.

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Book reviews

Wings for My Flight: The Peregrine Falcons of Chimney Rock
Marcy Cottrell Houle
Addison-Wesley, $17.95

In the spring of 1975, an idealistic and energetic young wildlife biologist named Marcy Cottrell packed her binoculars and field notebook and took up a position on Chimney Rock in southwest Colorado, near the eyrie of a pair of nesting peregrine falcons. North American birds of prey had just begun to look as if they might recover from the lethal effects of DDT, and the recently enacted Endangered Species Act promised to assuage the stresses they still faced. Cottrell arrived eager to make detailed field observations that would be useful in developing management plans for peregrines, never guessing that her efforts would fuel local tensions already simmering over the incompatible needs of conservation and development.

Told with a charming simplicity in fewer than 200 pages, her recollections form three parallel narratives. Above all, the book is a paean to the peregrine. "The land and cliffs and sky can never again mean quite the same thing for one who has witnessed a peregrine in flight," she writes, echoing her mentor, James Enderson. So inspired, her prose is at its best when evoking the grace and "fierce beauty" of one of Earth's fastest-moving creatures. The main characters are Chimney Rock's peregrines. Not all the nestlings survive, but two develop into awkward fledglings and, ultimately, skillful hunters. Each bird has a distinct personality, sketched in terms that are, perhaps, too human.

Most interesting, the author opens a window on field biology by sharing and

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explaining her notational system for documenting the birds' movements and their responses to human interference. At the end of the nesting season, hundreds of hours of observation are stitched together to reveal much that must be taken into account when managing wild peregrines—many of their hunting attacks appear to be unsuccessful, for instance, and they often must hunt farther from the eyrie than anyone had realized. An old rule of thumb holds that an undisturbed radius of one mile around the eyrie is sufficient; clearly it is not.

A human drama interweaves the birds' story. The biologist endures isolation, minimal equipment, a disfiguring accident, an emergency visit to a quack dentist and hostility from some among the local populace. On her first day, she learns that the site harbors little-known ruins of ancient Anasazi Indians. Plans to develop the ruins into a tourist complex ran afoul of the Endangered Species Act when the peregrines—derisively called penguins by some local workmen—took up residence. The "lady biologists" (a worried forestry official had "found a partner" to keep Cottrell company) become scapegoats for the region's economic woes.

Threading through the human and avian chronicles is the author's extended defense of endangered species on esthetic, genetic, ecological, pharmaceutical and economic grounds. Those considered, she reaches a conclusion that is ultimately spiritual: "It boiled down to one thing: if the peregrine was living free, then I too was free. If it was sacrificed to progress, then something in my spirit was sacrificed." None of her arguments is new, but all get fresh buoyancy on the wings of Chimney Rock's peregrines.

David M. Schwartz, author of books for children, is researching wildlife trade.

The History of Yellow Fever: An Essay on the Birth of Tropical Medicine
François Delaporte, translated by Arthur Goldhammer
MIT Press, $22.50

My fascination with yellow fever dates back to a day in my childhood when my grandmother told me the story of my great-grandfather. He was a Texas cowboy who sold his share of the family cattle herd and sailed off to Honduras to make his fortune in bananas. Yellow fever got him first. He died of the

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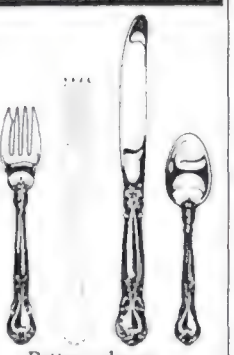
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dreaded *vomito negro* in 1906. What is this disease, I've often wondered, that could kill a healthy man in little more than a week but not harm the 4-year-old girl who had crawled inside a quarantine cage to kiss her father goodbye?

The History of Yellow Fever is a medical detective story. It could have been lifted from yesterday's newspaper: an international squabble between two scientists over who deserved credit for the critical breakthrough in the understanding of a killer disease. Who should be called the "conqueror" of yellow fever? Does that honor belong to Carlos Finlay, the Cuban doctor who identified the mosquito that transmits the yellow fever virus? Or to Walter Reed, the leader of a team of American researchers who demonstrated how Finlay's *Culex* mosquito spreads the disease? (About another important player in the drama, Army surgeon William Crawford Gorgas, Delaporte says very little, presumably because there is no one else to claim a share in his accomplishment. "Gorgas eliminated the scourge from the island within six months. It sufficed to break the cycle by destroying mosquitoes and their larvae.")

In the late 19th century, the toll from yellow fever in the United States alone was huge: in the year 1878, for example, the disease appeared in 100 American cities, infecting more than 120,000 persons and killing more than 20,000. Doctors believed that yellow fever was caused by an unknown germ, an "essential poison" that victims inhaled. An 1880 commission studying a yellow fever outbreak on the USS *Plymouth* blamed the epidemic on "putrefying materials" found beneath the ship's flooring, and criticized the practice of taking on supplies at ports "long known to be dangerously infected" with the disease.

But if heat, humidity and unsanitary conditions unleashed yellow fever, why was it unknown at some tropical ports? Why did one filthy ship harbor it while another did not? And why, with the new understanding of other tropical diseases, had scientists been unable to produce a single experimental case? That breakthrough would come after the Spanish-American War when Walter Reed's American Yellow Fever Commission went to study the disease in Cuba.

Reed was a bacteriologist. When he reached Havana in June 1900, he directed his research team to try to isolate the bacillus responsible for yellow fever.

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A month of work turned up nothing. In a moment of genius, so goes the popular version of the story, Reed decided to give up searching for the cause of the disease and begin working on how this "germ" was transmitted. He started with the *Culex* mosquito. (Twenty years earlier, Carlos Finlay suggested that this mosquito might be responsible for transmitting yellow fever.) This version also says that Reed issued elaborate research instructions to his men and then returned to Washington to finish a report on typhoid fever. A month later came the stunning news that Walter Reed's team had produced the first experimental case of yellow fever.

The History of Yellow Fever tells a different story. It wasn't intuition that led Reed to Finlay's mosquito, but instead, conversations with British doctors visiting Cuba in July 1900. They suggested that yellow fever, which did not pass easily from one victim to the next and seemed to require a two-week incubation period, might be transmitted by an intermediate agent—"a town-loving host for this town-loving disease."

With Reed's departure for Washington, Jesse Lazear, the only scientist on the American team who was familiar with recent ground-breaking work on the mosquito's role in the transmission of malaria, assumed control of the experiments. The first round produced no yellow fever. (Lazear's mosquitoes had fed on patients who were too far advanced in the disease to transmit the virus.) But on August 27, another of the commission members, James Carroll, was bitten by a mosquito that 12 days earlier had fed on a patient in the early stage of yellow fever. He soon came down with the disease. A few days later, a second case, a soldier bitten by the same mosquito, also had yellow fever. Reed's response from Washington is telling: "Did the *Mosquito* Do It?"

Then, on September 13, tragedy struck. Lazear was bitten by an infected mosquito and died 12 days later. Reed returned to Havana early in October and instituted more stringent ground rules for the research. Camp Lazear was built near the city of Quemados in a spot that was "sunny, adequately drained, and well ventilated." Other precautions ensured that "Reed was able to control all the variables. . . . The military government assumed responsibility for the project." Volunteers, chosen from the garrison, were quarantined before ex-

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posure to infected mosquitoes and closely supervised afterward. Reed soon produced what Delaporte calls "a striking *confirmation* of Lazear's work."

Delaporte's aim in this well-researched book is to reveal the serendipitous nature of scientific inquiry and to detail the contributions, the "conceptual building blocks," provided by the many forgotten heroes of the yellow fever story. Some historians are still partial to biographies that glorify the great geniuses of medicine, he suggests. For them, "Everything begins and ends with the genius of the founding saints." His own sentiments mirror those of Patrick Manson, whose work on filariasis led Carlos Finlay to the *Culex* mosquito.

"By giving [Reed] the hint and the material," wrote Manson to Finlay, "you have done your share and it is a notable one. Many men bring the bricks to build the house, and I do not see why the men who carry the corner stone should get all the credit."

Karl Ackerman is preparing a new edition of a 19th-century work on Maya ruins.

Chasing the Monsoon
Alexander Frater
Alfred A. Knopf, $21

Alexander Frater picked a tempestuous traveling companion for his journey through India. Due to arrive at Cape Comorin, the southernmost tip of India, at the end of May, Frater's companion, the Indian monsoon, shows up several days late and then passes through without pause or apology, leaving the author and millions of others drenched but rejuvenated in its wake.

Unperturbed, Frater joins the chase, and for the next two months traces the path of the monsoon up and across the subcontinent. He brings to the subject of rain the intimate knowledge of a poet or a lover, observing his companion in all its subtle hues and temperaments. There is tropical rain, "the kind that seems to possess a metallic weight and mass," and a gentler rain in which the "air was filled with fusillades of crimson flowers." There are portents of the tempest to come, as when the "waves crashing on the beach were . . . a series of lofty grey eminences that seemed to come sliding out of the sky." And there is finally the experience of being caught in the monsoon's full fury, the sensation of being "cocooned inside a roaring cataract of falling, foaming water."

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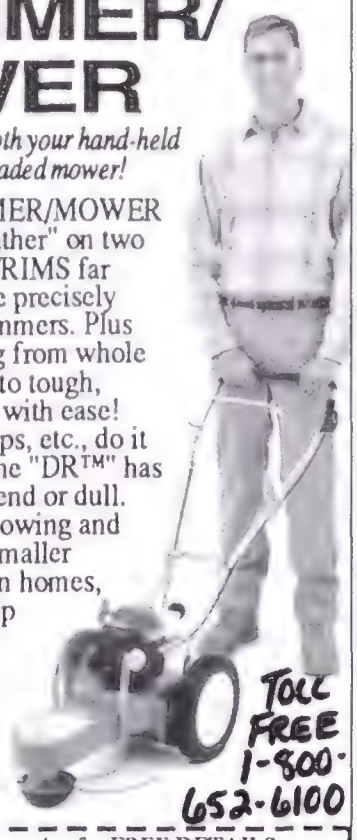

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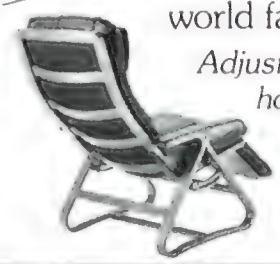
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the southern tip of India, Frater is waiting on a beach with a crowd of wealthy Indian holiday-makers. They have come to indulge in the monsoon's legendary healing, for in addition to providing release from the stifling heat that engulfs the country from March through May, the monsoon is a source of spiritual inspiration, artistic invention, miraculous medical cures and sexual freedom.

The sky darkens, the wind strikes "with a force that made our line bend and waver. Everyone shrieked and grabbed at each other. . . . Thunder boomed. Lightning went zapping into the sea, the leader stroke of one strike passing the ascending return stroke of the last so that the whole roaring edifice seemed supported on pillars of fire. . . . 'The rains!' everyone sang."

It is a marvelous moment, felt with sensitivity and poignance, recorded with journalistic acuity. Performing such double duty is the odd encumbrance of the travel writer, who must simultaneously feel and observe—and observe himself feeling. As an architect and writer doing research in India, I felt this acutely. Am I, I often wondered, one of them? Can we bridge the cultural chasm that divides us? Are we not, after all, human beings *first*?

In extraordinary moments such as the onset of the monsoon, Frater confronts this dilemma and answers emphatically—yes! But such moments do not occur frequently enough in his journey. After that exhilarating first moment of shared humanity, he buttons up and returns to the role of reporter and commentator. (Frater, author of two previous books, is chief travel correspondent for the London *Observer*.)

While driving into Bombay from the airport, for instance, Frater's taxi becomes marooned in the monsoon flooding, and he is forced to take shelter in a squatter colony. He describes his environs with sympathy and speculates on what it must be like for Bombay's five million slum dwellers to endure the monsoon in such abhorrent conditions. But then, another taxi shows up and he is off, on his way to Bombay's fanciest hotel, the Taj Mahal.

While *Chasing the Monsoon* is a story about Indians and rain, it is at the same time, the author tells us, an account of his attempt to work out powerful feelings that came with the death of his father. Frater was born and spent the early part of his life in New Hebrides

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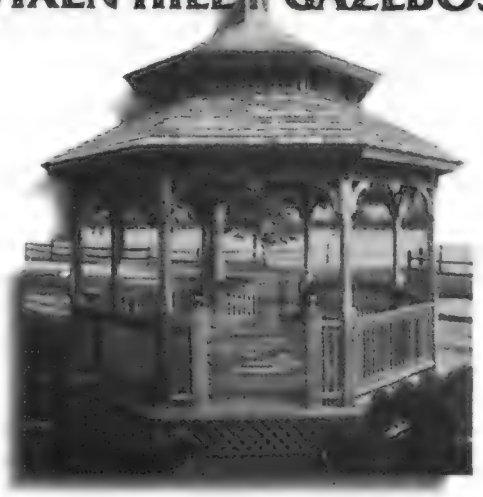

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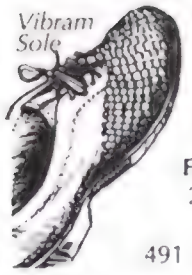

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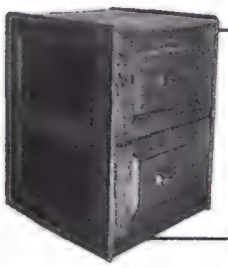
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(now known as Vanuatu), a collection of islands in the South Pacific colonized by enterprising Scotsmen, his family among them. These were people of energy and industry, of passion and commitment—Frater's father, who was the sole doctor for a thousand miles in any direction, a dedicated practitioner who struggled to banish influenza and measles from the islands in his charge; his mother, who set up a school and taught the islanders to read and write; and his grandfather Maurice, a Presbyterian minister, who built several dozen churches.

Over the bed of their young son, Frater's parents had hung a wedding gift: an Edwardian print of Cherrapunji, a town in the Himalayas and the wettest place on Earth. The senior Frater, an inveterate weather watcher, often spoke of going to Cherrapunji, and "implied that a visit at the height of the monsoon, with his rain gauge, would be a kind of pilgrimage." Years later, that powerful reminder of his childhood would become, Frater explains, the impetus for his own journey and for a reckoning with his past.

I finished *Chasing the Monsoon* unsure whether any such reckoning had occurred. Frater tells us that it has, that the rains and the journey have granted him restored health and a new serenity. His description of this catharsis is not convincing. I couldn't help thinking that if his father, mother and grandfather had ever asked themselves, Am I one of them? Are we not all human beings first? they would have answered, Yes, though not with words but deeds: look at the wounds I helped to heal, the schools I helped to build, the souls I helped to save.

Fortunately or unfortunately, Alexander Frater cannot subscribe so easily to the missionary impulses of his ancestors. Denied their deeply held moral certainty and purpose, Frater himself has become, it seems, a man cast adrift—a travel writer, of all things. Frater's family lived and died for their causes; he is never more than passing through.

At his destination, Frater reflects: "And what would my father have made of Cherrapunji? . . . Now I had come in his place and, staring out at the falls, I tried to conjure him up. But I couldn't see the shy young doctor who once pitted his wits against the extremes of the tropical weather systems, and who would have pressed me hard for details of Cherrapunji and the Indian monsoon, shaking his head, laughing in that surprised,

delighted way that I missed so much.

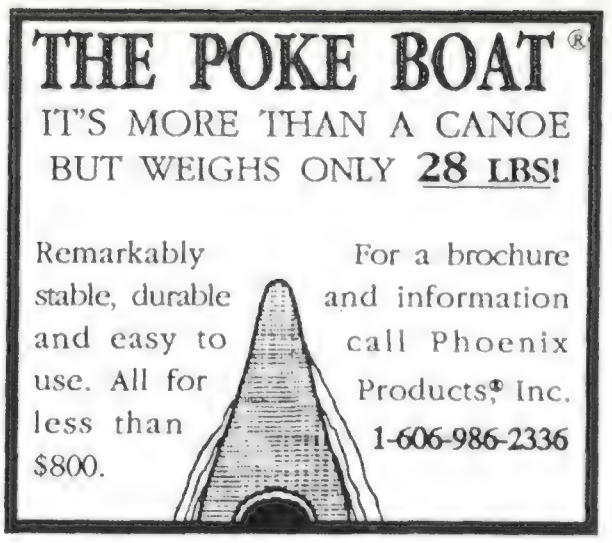
"All I saw was the brave, tired man who knew he had a mortal heart condition and who, stubbornly rejecting the idea of retirement, suffered his massive, inevitable coronary two weeks after joining a new practice. . . . I imagined this father looking at me a little doubtfully, privately wondering whether the trip had really been a good idea. Travel writing, eh? Well, perhaps such things serve a purpose. But a need? Hmm. He had wanted me to be a doctor too."

Frater's journey to India gave him opportunity and purpose, but alas, he passed it up. He stays, to the end, a man detached, and after two months of chasing the monsoon, he appears little changed by it. Stuck with a self-imposed mandate that allowed for little flexibility (with so little time available, he was reduced to traveling by jet and private car), Frater misses both the destruction wrought by the monsoon and the privations of drought in those parts of the country the monsoon failed to reach. What time remains to him is spent mostly in the salons of fellow expatriates or at parties with wealthy, English-speaking Indians.

When Frater comes upon a scene of real devastation, the flooded plain of the Brahmaputra River in Bangladesh, it is while en route to Cherrapunji by plane. His glimpse of the breached river, "a swelling effusion of light which turned to quicksilver," becomes merely another lyrical moment—the true impact of the rains is left below.

Chasing the Monsoon is not about social inequality, poverty or environmental devastation, and I do not mean to criticize the author for failing to be polemical. But I wish he had gone back to that Bombay slum, just as I wish he had taken the advice given to him early on, by a guest at a posh party in Goa, to visit one of the remote villages of Rajasthan, one of the driest parts of India. There he would have experienced for himself the baking heat, the parched earth, the lifeless cattle still as statues, the feeling of being coated with sand, and with these, the true meaning of the monsoon—its extraordinary gift of life. Frater would then have fulfilled the travel writer's ultimate responsibility, to bear witness to the truth. And doing so, I suspect, he would have rediscovered a purpose of his own.

Peter Engel, a California architect, is author of *Folding the Universe*.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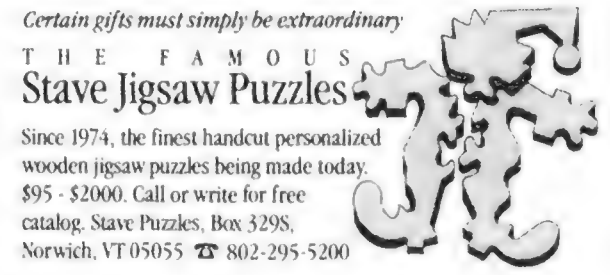
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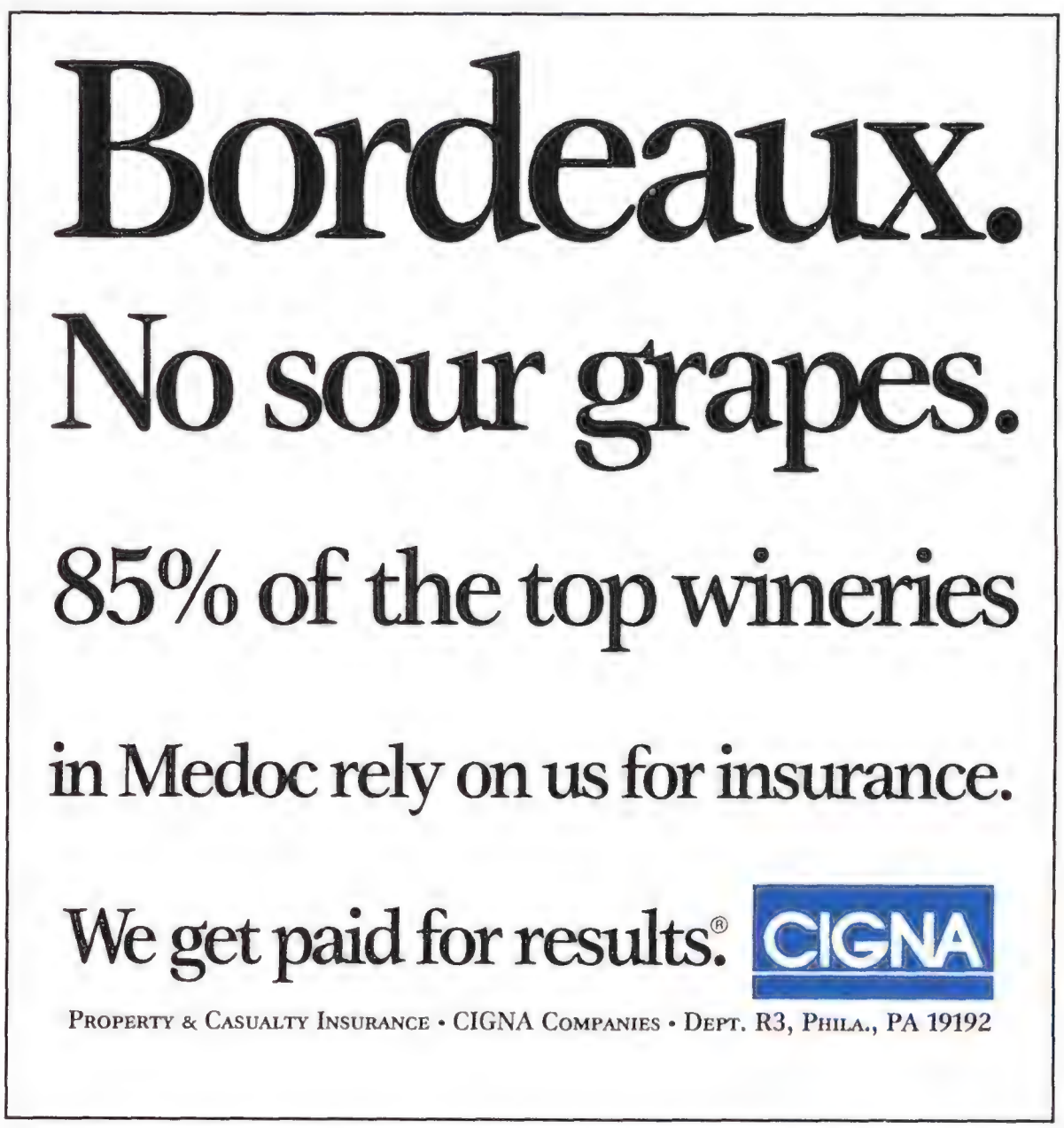
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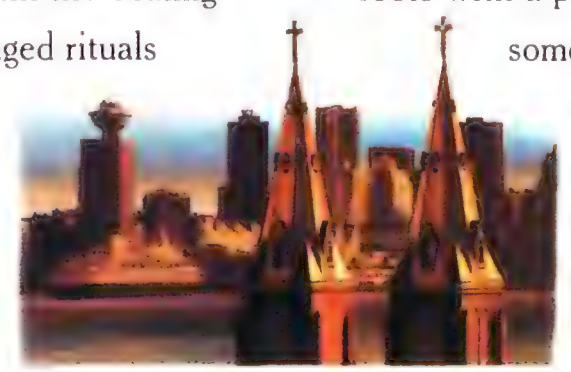

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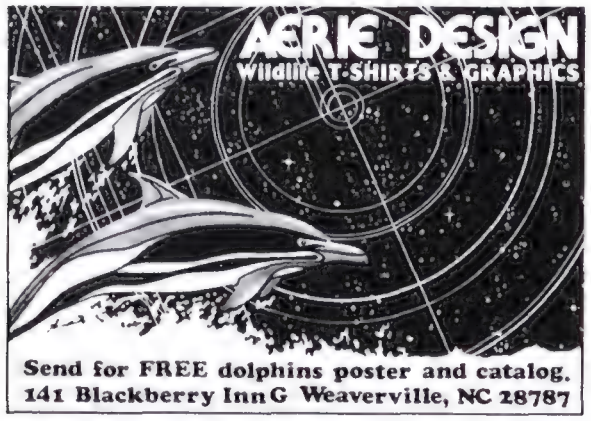

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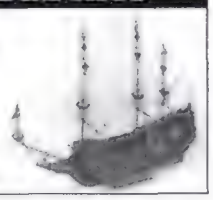

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Additional reading

Smithsonian horizons (p. 12)

Over the Edge: The Growth of Homelessness in the 1980s by Martha R. Burt, Russell Sage Foundation (New York), 1992

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Picture credits

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Smithsonian highlights

Planning a Smithsonian visit?

The new VHS video *Guide to the Smithsonian* is an excellent aid for previsit planning. For ordering information and the free Associates' Planning Packet, send a postcard to Associates' Reception Center, Smithsonian, Washington, D.C. 20560, or call (202) 357-2700. For hearing-impaired visitors, use TDD and call (202) 357-1729.

Begin your visit at the Smithsonian Information Center, located in the Castle. Hours are 9 A.M. to 5:30 P.M. daily.

Asian Pacific American Heritage Month
A variety of activities and programs are planned for May. For information, call (202) 357-2700 or TDD (202) 357-1729 daily from 9 A.M. to 5 P.M.

Freer remains closed
The Freer Gallery of Art is closed until early 1993.

Special May exhibits and events

National Air and Space Museum
Star Trek (through September 7) Show marks the 25th anniversary of the famed television series. Passes required daily; call (202) 786-2122 for details. See *Highlights continued*, page 160.
Legend, Memory and the Great War in the Air Permanent installation looks at the reality of aviation in World War I.
Antarctica (6 P.M. daily through June 14) New Imax film explores mysterious beauty of the world's southernmost continent.

National Museum of American History
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October 31) Exhibition showcases 19th-century pressed glass tableware.
First Ladies: Political Role and Public Image New permanent installation explores the various roles of our nation's First Ladies. Exhibit includes the Smithsonian's historic gown collection.
The White House Model (through September 7) Scale-model replica of the White House and its furnishings as they appear today.

National Museum of Natural History
Seeds of Change (through April 1, 1993) Exhibit explores the dramatic changes brought about by the exchange, begun 500 years ago, of five "seeds" between the Old World and the New.
The All-American Horse: Paintings of G. Harvey (through September 7) An homage to the historic role of the horse in North America.

National Museum of African Art
Recent Acquisitions/New Dimensions (May 2-September 27) Etchings, linocuts, watercolors and ceramics by nine modern artists from Nigeria, Côte d'Ivoire, South Africa and Kenya.
Purpose and Perfection: Pottery as a Woman's Art in Central Africa New permanent exhibition features the museum's Central African pottery collection.

Arthur M. Sackler Gallery
When Kingship Descended from Heaven: Masterpieces of Mesopotamian Art from the Louvre (through August 9) Loan exhibition presents some of the world's most celebrated works of art.
Arts of Mughal India (May 24-December 6) Paintings and objects from the late 16th century to the 18th.
The Arts of China (runs indefinitely) More than 200 objects span 6,000 years.

Hirshhorn Museum & Sculpture Garden
Directions—Thomas Struth (May 21-August 16) Large-scale color photographs document interaction between viewer and masterworks in European art museums.
Martin Puryear (through June 21) A retrospective of the sculptor's work.

National Museum of American Art
Chicano Art: Resistance and Affirmation, 1965-1985 (May 8-July 26) Show features Mexican-American paintings, murals, posters, sculptures, videos and photographs.
Elizabeth Layton: Drawing on Life (through June 28) Drawings by the octogenarian artist cover themes from grandmothering to world hunger.

Renwick Gallery
John McQueen: The Language of Containment (through July 26) Exhibition of 43 baskets by one of America's most important craftsmen.

National Portrait Gallery
Arnold Newman's Americans (through August 16) Images of major personalities of post-Depression America by the renowned photographer.
Poster Portraits (through August 16) Posters from the gallery's collection.
The Levy-Franks Family Colonial Portraits (through May 31) Portraits of members of a leading family in 18th-century New York's Jewish community.

Anacostia Museum
To Achieve These Rights: The Struggle for Equality and Self-Determination in the District of Columbia, 1791-1978 (through July 26) Exhibition examines the struggle by black people to secure equal rights in the nation's capital.

Arts and Industries Building Experimental Gallery
Psychology: Understanding Ourselves, Understanding Each Other (May 18-September 9) Developed by the American Psychological Association, hands-on exhibition encourages children and adults to explore their own psychological processes.

Cooper-Hewitt Museum (New York)
The Cooper-Hewitt Collections: A Design Resource (through August) Some 1,200 objects chronicle the history and collecting philosophy of one of the most important repositories of design.

National Museum of the American Indian (New York)
Weaving a Mayan Heritage: Clothing by Juana Cavanaugh (through July 12) Handmade woven textiles by an Ixil Indian from Guatemala.

Exhibition catalogs

Catalogs currently available include:
Elizabeth Layton: Through the Looking Glass (paper, $16)
Arnold Newman's Americans (paper, $35; cloth, $60)
Martin Puryear (paper, $38.50)
To order, send check or money order to Smithsonian Museum Shops, 8308 Cinder Bed Road, Newington, Virginia 22122. Include 15 percent of purchase to cover postage, handling (minimum, $1.75).

Smithsonian on the air

Speakers Corner with Roger Mudd Weekly public radio series presents lectures by scholars and experts from around the world. Check local listings.
Smithsonian Presents Invention Series of half-hour television programs explores spirit of innovation behind invention. Tuesdays, 9:30 P.M. EST, The Discovery Channel. Check local listings.

Smithsonian National Associates

The National Associate Program U.S. and International Events will visit Spokane, Washington, May 21-24. The program will feature highlights of aviation history and sewing techniques from the Pacific Rim.

Associates in Spokane will receive brochure invitations. For further information, write or call the U.S. and International Events Program, 490 L'Enfant Plaza, S.W., Suite 4210, Washington, D.C. 20560; (202) 287-3210.

Resident Associate Program

To become a Resident Associate, or for fee and ticket information, call (202) 357-3030. May events include:
Kelly McGillis: Life on the Stage and Screen (May 4; 6 P.M.) Diane Rehm talks with the actress about the pitfalls and rewards of a career in the performing arts.
An Evening with Joyce Carol Oates (May 12; 6 P.M.) The award-winning novelist reads passages from her new novel, *Black Water*.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here are some May exhibits:
• Atlanta, Georgia (May 30-June 28) *Seeds of Change* (panel exhibition based on the NMNH exhibit), Atlanta Fulton County Public Library.
• Milwaukee, Wisconsin (May 30-July 5) *Capturing the Spirit: Portraits of Contemporary Mexican Artists*, United Community Center.

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The Dreyfuss Hudson will be available in August 1992. PRICE: $2,500. To receive additional information on the Lionel Smithsonian Collection J3a Dreyfuss Hudson, call us at 1-800-628-6202 or write to Lionel Smithsonian Collection, P.O. Box 225, Birmingham, MI 48012.

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Lionel Smithsonian Collection

Star Trek's enduring allure

The National Air and Space Museum brings out the stars in a show marking the famed series' 25th anniversary

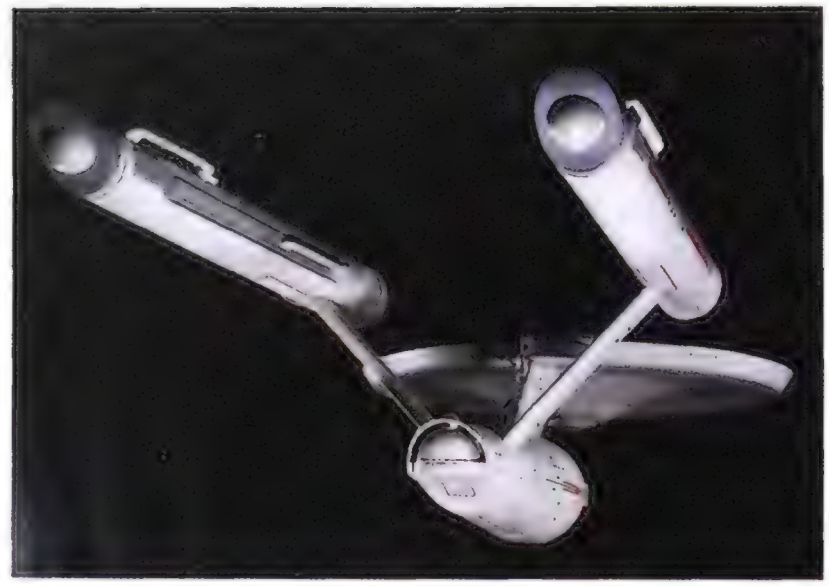
The creator of *Star Trek*, the late Gene Roddenberry, considered the television series a "celebration of ideas, a testament to the fact that dreams can come true." Conceived and produced in the decade when humans were actually beginning to journey into space, the series had a huge influence on how people envisioned space travel. Hundreds of millions around the world have watched the original episodes. Captain Kirk, Mr. Spock, Scotty and other crewmembers of the USS *Enterprise* are more familiar to many than real-life astronauts.

Now this cultural icon is being honored by a major exhibition at the National Air and Space Museum. The show, NASM's first to focus entirely on popular culture, features more than 80 props, costumes and models from the original programs, as well as an array of still photographs of key scenes.

With its now familiar opening musical theme and promise to "boldly go where no man has gone before," *Star Trek* premiered September 8, 1966, on NBC-TV. It did more than simply chart the marvels of intergalactic travel in the 23d century. "*Star Trek* is an important cultural artifact of the Sixties," says Mary Henderson, the show's curator. "In the guise of science fiction, the series dealt with substantive concerns such as Vietnam, the Cold War and civil rights. It explored many of the cultural conflicts of our society by projecting them onto an idealized future."

Beam yourself over. The journey continues through September 7. Limited free, same-day passes are available at the museum, and advance passes through TicketMaster: (800) 551-7328. For details, call (202) 786-2122.

Diane M. Bolz



Original model of starship *Enterprise* was used for the filming of the first *Star Trek* television series. The model was designed by the series art director, Walter M. Jeffries.

Frank Gorshin is Bele in racial parable "Let That Be Your Last Battlefield."

Array of fan memorabilia includes *Star Trek* lunchbox, toy phaser, comics.

Props (from left): portable tape viewer, computer files, communicator, tricorder.

Spock (left) uses Vulcan "mind meld" to communicate thoughts to McCoy.

Medley of costumes designed by William Ware Theiss for the original series stands in for crew, behind navigation and helm-control unit used on the original set of the *Enterprise* bridge.

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Waterton-Glacier *August 22-September 2*

Coast of Maine Cruise *August 23-September 2*

Native Cultures of the Southwest *August 26-September 5*

Great Smoky Mountains *August 29-September 6*

Maine: An Insider's View *September 1-8*

Civil War: Eastern Theater *September 4-14*

Olympic Park-Mount Rainier *September 5-13*

Pacific Northwest-Columbia River Cruise *September 5-18*

Great Camps of the Adirondacks *September 12-19*

Arches and Canyonlands *September 19-26*

New York Theater *September 24-27*

Grand Canyon *September 24-27 or October 8-10*

Bryce, Zion and the North Rim *October 1-11*

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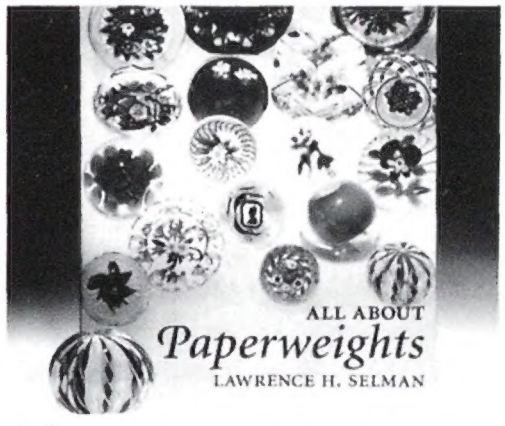

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By Bruce Watson

'No jury would say the label didn't warn us'

CAUTION: The Surgeon General has determined that reading this page can cause confusion, apathy and reckless abandon with household appliances.

Once, Americans lived with danger. We roamed the range. We poled flatboats. O Pioneers, we tamed the wilderness! Now we are mostly settled, couched in serenity. I worried about that. Was I losing the bold pioneer spirit? Then I began reading labels.

CAUTION: DO NOT REMOVE THIS TAG! NEVER immerse your microwave oven in water! DO NOT allow children to climb INSIDE your microwave oven! NEVER put metal in your microwave oven, not even if someone dares you! NEVER put pets, small wild animals or IGNEOUS ROCKS in your microwave oven! Your oven has been built to provide a lifetime of safe cooking. Enjoy!

Danger used to lurk outside my cabin, but now it has come inside. I live in terror that quite by accident I will do something gauche with an appliance and cause Armageddon in my kitchen. Every year there are more cautions.

CAUTION: Your blender is designed to provide years of quality blending. DO NOT stick pieces of barbwire in your blender! NEVER operate your blender in a moving vehicle! DO NOT turn your blender upside down while it is in use!

In our pioneer days, cautions were few. God-fearing settlers kept their blenders upright at all times. Then somewhere for some reason someone flipped one over. Someone totaled a kitchen. Someone sued. Someone won a dream kitchen with Mexican tile. Now we are cautioned, and no jury can say they didn't warn us.

CAUTION: Your electric blanket was carefully assembled to give a world of warmth. NEVER submerge your electric blanket IN THE OCEAN! AVOID eating gooey finger foods while using your electric blanket! NEVER use your electric blanket OUTSIDE IN A THUNDERSTORM!

There are tribes, entire *nations*, that ritually abuse their appliances, but not I. For years I lived in fear of being arrested for removing the tag from my pillow. And having read that I should NEVER use my electric blanket outside in a thunderstorm, I didn't. My wife knew someone who did once. Seems his dog was shivering in the doghouse during a nor'easter, so this guy rigged up an extension cord and. . . Rover survived the voltage but was never the same. Open and shut case, his lawyer said. He could count on millions in damages to compensate for emotional trauma to his dog. But the jury read the label.

CAUTION: Treated properly, your toaster will give a lifetime of browned bread. NEVER immerse your toaster in gelatinous substances! DO NOT insert fingers, hands or toes into toaster slots! NEVER JAM PAPER, PLASTIC, TWIGS OR GRASS IN TOASTER FOR ANY REASON! DO NOT USE your toaster to store compact disks! AVOID tipping your toaster while it is IN USE! NEVER operate your toaster while handling heavy equipment!

Most of these seemed reasonable. I would *never* operate my toaster while handling heavy equipment. My wife knew someone who did once. And you'd never catch *me* toasting up a loaf while driving my forklift. But why couldn't I *tip* my toaster? What was the big deal?

I was growing careless about cautions. DO NOT, NEVER, AVOID—we're only human, after all. (Imagine God's cautions to Adam and Eve: Your garden has been designed to last a lifetime. DO NOT EAT ANY FRUITS OFFERED BY SERPENTS! NEVER TEMPT EACH OTHER WITH EXCESSIVE WARNINGS!) The more cautions I obeyed, the more I wanted to risk it all, just once.

Late at night, when cautious people were snug under their electric blankets, avoiding gooey finger foods, I stole into the kitchen, dropped a slice of bread in the toaster, then inch-by-inch lifted one side. The bread was turning brown. I tipped to a 30-degree angle, 45 . . . 50 . . . 60. At precisely 90 degrees, the toast popped up and shot across the counter.

That was *it*? For *that* someone sued and won a vacation home in Aruba? But then, perhaps I'd just dodged a bullet. Danger being my middle name (actually, it's Edward), I tried it again, tipping at jaunty angles—lateral, obtuse, acute. I flew the toaster around the kitchen hoping for a minor explosion, a shower of sparks. The toast popped up, golden every time. O Pioneers!

In a silent kitchen late at night, it's easy to throw caution to the wind. What other warnings were just so much fearmongering? Toaster in hand, I stalked the counters. I jammed a phone book and credit cards into the slots. No go. In the bathroom I did ghastly things to my toaster with patent medicines. It sat there inert. I was lowering the toaster into a batch of tapioca pudding when my wife came downstairs.

"What are you *doing*?" She saw the pudding and grabbed the toaster just in time. "Didn't you read the manual?" She rummaged through a drawer and found it. "'NEVER immerse your toaster in gelatinous substances!' Do they have to tattoo it on your forehead? What's wrong with you?"

"The pioneers," I managed to blurt out. "O Pioneers."

"No pioneers ever immersed toasters in tapioca," she assured me. "It's 3 A.M. Come to bed. And put those CDs away."

"I'll be right up," I said. "Just let me get some gooey finger foods."

I'm a reasonably wary American, but ever since that night I haven't trusted warnings. The next time you're cautioned NOT to open your VCR with your electric can opener, you'll know who's behind it. I'm the guy your wife knows who tried it. Someone's got to keep the pioneer spirit alive.

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